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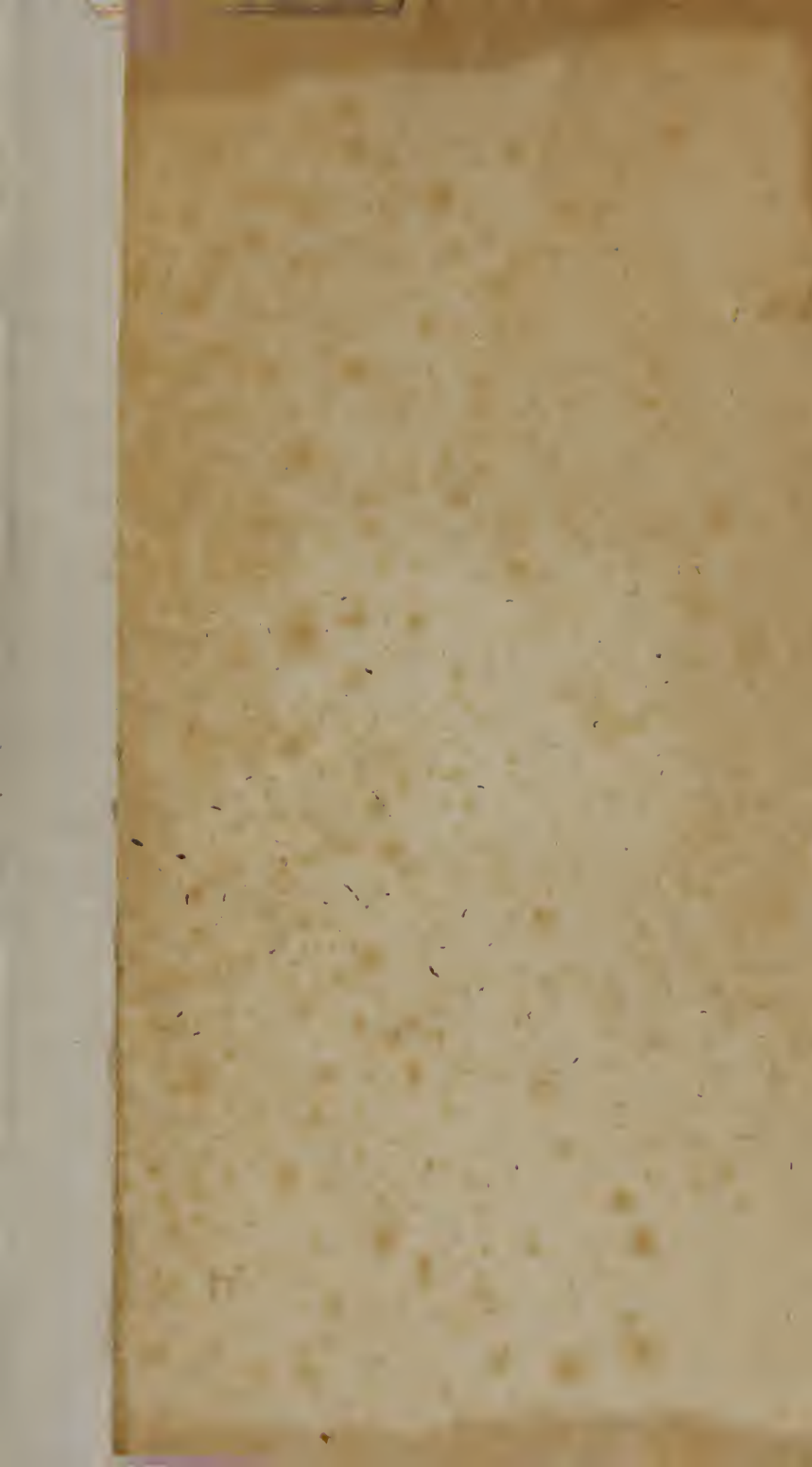
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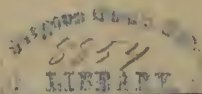
AUTUMNAL FEVERS

OF

SAVANNAH.

BY W. C. DANIELL, M.D.

"Le premier devoir du médecin, est d'agir sur le principe de réaction."
BERLINGHIERI.



SAVANNAH:

PUBLISHED BY W. T. WILLIAMS; AND BY COLLINS & HANNAY,
NEW-YORK.

1826.

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DISTRICT OF GEORGIA.

BE IT REMEMBERED, That on the twenty-second day of October, one thousand eight hundred and twenty-five, and in the fiftieth year of the Independence of the United States of America, William C. Daniell of Savannah, in said District, hath deposited in this office the title of a Book, the right whereof he claims as author in the words following, to wit:—

“Observations upon the Autumnal Fevers of Savannah. By William C. Daniell, M. D.

‘Le premier devoir du médecin, est d’agir sur le principe de réaction.’

BERLINGHIERI.”

In conformity to the Act of the Congress of the United States, entitled “An Act for the encouragement of Learning, by securing the copies of Maps, Charts, and Books, to the authors and proprietors of such copies, during the times therein mentioned.” And also to the Act, entitled “An Act, supplementary to an Act, entitled An Act for the encouragement of Learning, by securing the copies of Maps, Charts, and Books, to the authors and proprietors of such copies, during the times therein mentioned, and extending the benefits thereof to the arts of designing, engraving, and etching historical and other Prints.”

GEO. GLEN,

Clerk District of Georgia..

TO N. CHAPMAN, M.D.

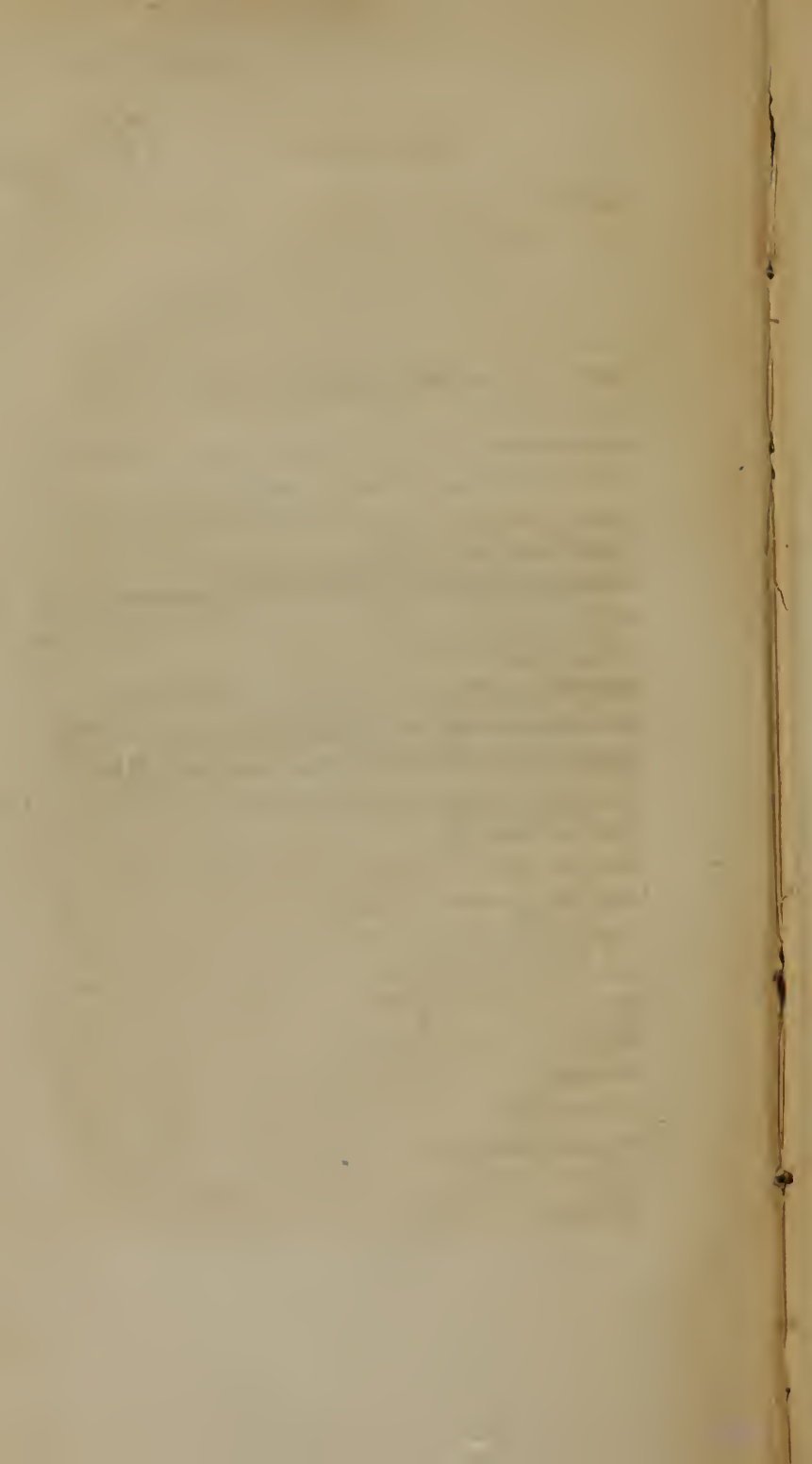
PROFESSOR OF THE INSTITUTES AND PRACTICE OF PHYSIC AND
CLINICAL PRACTICE, IN THE UNIVERSITY OF
PENNSYLVANIA;

THE following sheets are respectfully inscribed, as a feeble acknowledgment of many acts of kindness, and repeated evidences of friendship to the author, as well as a fleeting testimony of the high estimation in which his talents and attainments, both professional and literary, are held in common with the world, by

THE AUTHOR.

Savannah,

16th October, 1825.



INTRODUCTION.

IN submitting the following brief remarks, upon the character and treatment of the autumnal fevers of Savannah, to the public, I feel much embarrassment. I well know the scepticism with which innovations of any kind are received by the world ; and I should offer the gleanings of my own observations with less diffidence, if they possessed less novelty. Although it be my fortune to entertain opinions which have the sanction of neither time nor authority, I cannot, with any justice, be reproached for convictions, which experience, as diligent and dispassionate as I could make it, has forced upon me. It is true, I may overrate the importance of such opinions ; if I do, it cannot be doubted that both reproof and rebuke await me. Of my opinions and practice, I have neither sought concealment, nor made mystery ; of both I have invited examination.

If there be a situation more trying than that of a physician, who, from a sense of duty, has

abandoned an established mode of treating an epidemic, and who attentively and diligently watches its course for new lights to guide him in search of more efficient remedies, and supposing he has manifestations of them, pursues them cautiously and considerately amid the prejudices of a community, and the calumny of his professional brethren, I know not where it is to be found in the temporal affairs of men. Such, for the greater part of the last eight years, has been my situation. The force of public opinion has eventually driven my opponents from their old coverts, and little is now heard of inflammations of the stomach and bowels, caused by our fevers; and much less of bleedings, and blisters, drastic purgatives and salivations in their treatment.

It was my misfortune, in the commencement of my professional career, to engross a larger practice than my experience authorized. Ardent in my own feelings, I had, in adopting the opinions of standard authors, attributed too great an importance to the weight of their experience; disappointment was the consequence. However, too buoyant in my feelings to despond, I devoted myself to a re-examination of the records of my profession, and rendered cautious by the short experience which I had derived from my practice, I was enabled to detect, as I supposed, frequent misgivings which had before escaped me. I was frequently, moreover, re-

humbled of a remark of my kind preceptor, Professor Chapman, that he who would devote himself to selecting the true from the false experience of medical writings, would confer a lasting obligation upon the profession. The greatest advantage which I derived from the study connected with my own observations, was, a settled conviction, that the character and treatment of our autumnal fevers were yet to be learned. I resolved to await a favourable opportunity of studying them, divested of any bias as to their character. This was amply afforded in the season of 1817, early in which the fever appeared, and prevailed extensively till winter. I soon found myself involved in a practice which gave me but little time for minute and attentive examination or much deliberation. I was hurried on from day to day, and from case to case, more elated with the extent of my practice, than humbled by the high responsibility of my trust, or the embarrassment of my *situation*. It is true, I endeavoured to atone for what I considered the defective character of the treatment, by pursuing it with greater energy: my success was deemed equal to that of others; and I endeavoured to conceal from myself, my dissatisfaction at the mode of treatment which, in common with other physicians, I pursued.

The time soon arrived, however, which dispelled the delusion. About the latter end of

August, and during September, there was a very considerable abatement of disease. This arose from an absence of subjects; for, towards the close of the latter month, several vessels arrived from Europe and the north. The seamen and passengers which they afforded, very soon became sickly; and with them, the fever assumed a much more severe and rapid character. Their numbers were increased from day to day, by new arrivals. Here the disease ran its course in two to five and six days. Evacuants, even the mildest, could not be borne. There was, from the first, great debility. Blisters frequently failed to vesicate. Indeed, nothing appeared even for an hour, to arrest the disease. It soon became obvious that every attempt to salivate must be nugatory. It was at this time, that I became first impressed with the importance of the LOSS OF TONE IN THE SKIN; and of the necessity of the adoption of some means to restore it. There was not time for much deliberation. I endeavoured to make blisters available, by increasing the proportion of the flies, and by the addition of Spt. Terebinth., but with no advantage. The season progressed: disease and death thickened around us. The fevers manifested a direct and speedy tendency to prostration. To me, it became evident, that such speedy and constant collapse, was the effect of a debilitating cause; that the

fever originating in debility, was perpetuated by it, and the system sunk under its direct influence. I could not conceive that any inflammatory disease, without obvious and palpable manifestations of a high excitement (none of which existed) could so speedily end in prostration. I sought counsel from some of the medical gentlemen of the place : with more experience, (and, perhaps, more discretion, certainly with more caution,) they professed to see no reason why we should doubt the efficacy of a system of treatment which was supported by the opinions of so many great men, and which had the authority and sanction of time. It was true, (said they) that the disease is of a high grade, and many cases terminate fatally. That they continued, is to be attributed rather to the severity of the fever, than the want of virtue in the remedies. To my mind, all this was by no means satisfactory. Those who had confided in me, were daily dying around me. They looked to me for a succour which I had not been enabled to afford them. I was humbled to the dust ; for I felt my attendance amounted almost to imposture. If I had believed the disease to be absolutely incurable, my feelings would have been different. In a state of feeling, to which even at this day, I cannot recur without pain, in several cases then under treatment, I resolved to abandon a practice which, at least,

in my hands, had achieved nothing, and I substituted an infusion of serpentaria with bark. This prescription was sent out in the evening. Though wearied and exhausted with the fatigues of the day, I felt that I could not sleep. I traversed my parlour in a state of mental anxiety, which I never felt before, nor since, for several hours after midnight. I then sought my chamber; my dreams carried me to the bedside of my patients, whom I imagined were dying. I awoke, but to repeat my horrible visions. Eventually, the hour arrived, when I could visit my patients. Their condition soothed my anxiety: for no evil had yet resulted from my tonic remedies. They were persisted in afterwards with decided advantage. In new cases, I resorted to them earlier, and my success with them, although not satisfactory, was infinitely greater than with the other remedies which I had previously used. Urgent business called me to the interior of the state, about the first of November.

In the following winter, I detailed the result of my success with the bark and serpentaria to some medical friends, especially to the late Dr. Kollock; who had been absent the preceding season, and whose confidence and friendship it was my good fortune always to enjoy. The distrust with which all received my relation, gave me much pain; and eventually (though it may appear a weakness to acknowledge it) impaired

my own confidence in the treatment which I had adopted.

To the influence of the dry culture system, which went into operation the following year, (and which from the fine condition in which the lands were from their cultivation in rice the preceding,) we owe the comparative exemption from fever enjoyed in 1818. Owing to this circumstance, and my ill health in 1819, I had very few opportunities of seeing cases of fever until the appearance of the fatal epidemic of 1820. My conversations with physicians, both at home and abroad, during this interval, showed me, that in doubting the efficacy of the depleting and mercurial system of treating autumnal fevers, I stood almost alone. The only physician, whom I conversed freely with, who seemed to think I might be correct, was the late Dr. Berrien; who, in falling a victim to the fever of 1820, deprived his state of one of her most valuable citizens, and his profession of one of its brightest ornaments. Such language applied to a man of twenty-five years, may be deemed complimentary; but, I appeal with confidence, to those who knew, and could appreciate him, for its justice. In the death of Dr. Berrien, I lost both a sincere friend and a fellow-labourer, in investigating the nature and treatment of our fevers. He had already united with me in the use of sinapisms and Cayenne pepper; of whose utility, he expressed

himself confidently, from the short experience which was afforded him in 1820, previously to his illness and subsequent death.

In the early cases of fever, that fell under my care during that season, I pursued the established mode of treatment ; from which, however, I was soon driven by my want of success. Bark and serpentaria I then prescribed cautiously. They were frequently either rejected, or the head became affected, and they were discontinued.—Cayenne pepper (in infusion) was then tried by me, and with some success. In one case, (that of a Mrs. Nickerson,) it suppressed the black vomit ; and she recovered. Although, encouraged to continue this article, it was evident that something in addition was necessary. It was soon pretty fully understood that this fever resisted all the usual modes of treatment. Public confidence became much impaired in even our most experienced physicians. Many popular medicines were suggested and used without consulting a physician ; among these, snakeroot and salts administered in divided doses, received much attention. Some used the serpentaria, others the Seneka snakeroot. I saw several, in whom this combination produced excessive retchings. In such cases, I derived great advantage from the use of pepper tea. I aided that, in many cases of fever, by the use of sinapisms. These were certainly serviceable. At first, I

relied upon merely their rubefacient effect ; afterward, I kept them on until the skin was inflamed. My success, though by no means great, yet attracted at the time considerable attention. It was inquired from a neighbouring city, what were the remedies I had used, and their mode of administration.

At this (to me, an interesting) period, I became myself ill with fever, from which I did not recover, until the termination of the season. During my illness, it was frequently a most painful reflection to me, that I had been suddenly arrested in the midst of investigations which appeared to me fraught with the deepest interest to my fellow-citizens. Since, I have pursued regularly and constantly these inquiries. They have led me to the introduction of a new system of treatment, in our autumnal fevers, and to a new theory of their nature and character. My opinions of our fevers have been the offspring of the success of the medicines which I have used, and of examinations of the dead. My explanation of the action of our fevers may be erroneous. I cannot have been deceived either in the success of my treatment, or in the *post mortem* appearances which are detailed in the following pages.

That I feel a solicitude for the fate that awaits these Observations, it would be folly to deny. In this anxiety, however, there is but little that

is selfish.—Limited in my professional views, to a small town, where personal address is of more importance, than higher qualifications, I feel that I shall be but little affected by the judgment which the medical public may pass upon my labours. I also know, that whilst I may be summarily and hastily condemned, what I may gain, will be silently and slowly acquired. The revolution, which I propose in the long established opinions, of a whole profession, if ever achieved, must be the work of time.—In medicine, as in religion, there is no standard by which matters of opinion, can be measured in the sight of men ; and in the one, as in the other, much depends upon the faith of the parties. Hence, the bitterness of the controversies concerning either. I expect few converts among those who have long pursued the profession. It is to those, who are to be the future physicians of the southern states, where the fevers of which I treat are habitual and destructive, that I would most earnestly appeal. To this hour, the judgments of the southern physicians, are chained to the desks of the northern schools. The latter complain of the undue influence which European doctrines exercise over the minds of the American physicians. That is not more preposterous, than the professional sovereignty of the north is, over the south.

No man feels a higher respect for the talents,

learning, and industry of the medical gentlemen of the northern and middle states:—no one is more gratified than myself, at the honourable competition which the northern medical schools hold with the munificently endowed institutions of the same kind in Europe. They, certainly, understand the diseases of their own climate, much better than we of the south do. But in turn, something is due to our own experience and observation, in our appropriate diseases.

The medical profession of the south, is without character; and consequently, respectability and reputation. These are to be obtained, only by combination; the liberal patronage of our state legislatures, and by the erection of medical schools among us. The examples set by the legislatures of Virginia and South Carolina, are as commendable for their policy, as laudable for their liberality.

OBSERVATIONS

ON THE

TOPOGRAPHY OF SAVANNAH.

SAVANNAH stands upon a plain, on the south side of the river of the same name, about twelve miles in a direct line from the ocean. This plain, elevated some forty feet above low water mark, is composed of sand, with here and there a narrow vein of clay running irregularly through it. In some places, beneath the surface, the sand is discoloured by iron. It is believed, that there is not an equal elevation so near the sea, between New-York and the Isthmus of Darien. Fine water is obtained, by penetrating twenty to thirty feet in the sand. From east to west, the bluff extends along the river, upwards of a mile; terminating abruptly at either extremity. There is a very gentle and regular declivity, to the south, for several miles. Opposite the city, lies Hutchinson's Island; the soil of which is

alluvial; and in the language of the country, is called tide swamp: that is, it is subject to inundation, by the ordinary spring tides; and is well adapted, in consequence, to the cultivation of rice. The city is bounded on the east, and west, by similar lands. The ordinary elevation of the tides opposite the city, is about eight feet. The salt water approaches usually, within four or five miles of Savannah: when the river was low in 1818, it came to within about half that distance. Soon after passing the city, in its course to the ocean, the river is divided into numerous channels, by small islands of marsh; the beautiful and delicate green of which, interspersed in the waters, affords, when viewed from the northeastern extremity of the bluff in a summer's afternoon, one of the softest scenes which I have ever beheld. The Carolina shore affords a large body of very valuable rice land, most of which is in a state of cultivation.

By the storms of 1804 and 1824, these lands were placed from six to ten feet under water, and sustained great damage by the destruction of crops, houses, dams, &c. In many of these plantations, are found mounds of a very rich and black earth, elevated, some as much as ten and twelve feet, which afford secure retreats during these gales and inundations. Upon some of these mounds, there are trees evidently the growth of centuries. They are not confined to

the banks of the river, but are usually considerably removed, sometimes more than a mile, from them. Pieces of earthen vessels, such as are supposed to have been used by the Aborigines, are frequently found upon them; sometimes, these mounds occupy an extent of several acres, and afford sites for barns and stacking places for rice, beyond the reach of any storm; thereby adding much to the value of a plantation. In passing up the river, these mounds become larger and more numerous, than nearer the sea. Experience has shown, that residences upon these mounds are more sickly, than on the adjoining low grounds. It is equally true, that settlements upon the river bank, are more healthy than those farther removed.

The city of Savannah is open and spacious, being divided by numerous and wide streets and lanes, intersecting each other at right angles, with large squares at regular distances. Its plan is certainly better adapted to a warm climate than any that I have ever seen. Our elevation above the adjacent country, and the open plan of our city, give us the advantage of a pretty regular sea breeze in summer; and our heat, though from its long continuance, it is much more debilitating, is by no means so oppressive, as in other cities to the north of us. Upwards of twenty years ago, the *Pride of India* was planted in all our streets and squares.

—These have afforded us a shade in summer, the value of which cannot readily be appreciated abroad.

Many of these were uprooted or dismantled by the storm of 1824 : and in many places the water oak has been substituted for them. Believing that no tree can, in this soil, sustain itself against a storm, such as that of the last year ; I am fearful that, at some future day, when these oaks shall have attained their full size, the recurrence of another storm, by beating them upon our houses, will do incalculable mischief. The Pride of India is so light, and yields so gradually to the gale, that it produces little or no injury, when thrown against even small wooden houses. It will be obvious at once, that there is not in the character of our soil, nor in our situation, any thing to preclude us from the enjoyment of health ; and, that whatever causes of disease may exist, are within our own control. It was under this impression, that a number of enlightened and philanthropic gentlemen of this place, long since conceived the idea of cutting off the sources of fever, which existed around our city, by changing the cultivation of the low lands, from a wet to a dry kind.

It was known, that whilst these lands remained in a state of nature, they were unproductive of disease, and that some seventy-five years ago, as I have been informed by Dr. Jones, Savannah

was resorted to in summer, by some of the inhabitants of Charleston, on account of its salubrity. In 1817, at a town meeting, it was resolved that about seventy thousand dollars should be appropriated by the city, to the purchase of the right of cultivation in wet culture, of such of the tide swamps as were adjacent to the city. These lands were accordingly subjected to a dry culture, by contract, at the price of forty dollars per acre ; and the system went into operation the following year. Its success at first, surpassed the expectations of its warmest friends. The want of attention to the cleanliness of the city ; the introduction of a labouring class of whites, unaccustomed to our climate ; the great mortality of 1820 ; the reputed unproductiveness of the dry culture lands, with other circumstances, gradually, brought the system into considerable disrepute ; and in 1821, it was determined that the propriety of continuing it, should be decided by a vote of the citizens. Upon counting the ballots, the majority in favour of its continuance was only sixty-nine votes. Those opposed to the dry culture system, now became more clamorous than ever. About this time, new efforts were made to sustain the system : a new train of measures was adopted ; a board of health, which had been previously established, took under its special care, the condition of our streets, lanes, &c., and great attention was paid to cleanliness.

The proprietors of the dry culture lands, were gradually induced to pay more regard to their contracts. One of the largest tracts, and immediately opposite to the city, came into the possession of T. Spalding, Esq. of Darien, who placed it at great labour and expense in very fine order. His example was followed by several of the other contractors; and most of these lands are now in good condition. Its benefits being most obvious, public opinion is now almost unanimous in favour of the dry culture system.

It has been already stated, that the great mortality from the yellow fever of 1820, aided in bringing the dry culture system into disrepute. The production of this epidemic having been attributed to various causes, it may not be amiss to point out its real sources. In the first place, it will be proper to remark, that during a few years previous to 1820, a very great number of labouring foreigners, and especially Irish, came to the United States. The large cities to the north were soon thronged with them. The commercial embarrassments which occurred soon after, diverted many to the south; and a large number located themselves in this city.

White porters and draymen, were unknown in Savannah, previously to the winter of 1818-19. Very many arrived in August and September of the latter year; almost all of whom speedily became victims to the climate. In the

winter of 1819-20, our city was literally thronged with them. Every tenantable house was crowded. The great fire of January, 1820, disposed very many of them, of their trail homes. These were necessarily driven in upon their countrymen; and frequently two and three families were found in small houses of one story, with but two small rooms ten or twelve feet square; in one of which the occupants cooked, washed, and ate; and slept in the other. I have, elsewhere, adverted to the inattention of the police to cleanliness. The filth was greatly increased, by these crowded families. It was in the eastern and western extremities, where these people mostly lived, that the fever made its appearance. In the central southern part of the city, which had been recently built up, and where there was none of this crowded population, no case of fever appeared during the whole season.

There is no doubt, but that the decayed condition, in which many of the small buildings were, also contributed, though very subordinatedly, to the causes of disease. My own observation of the extreme filthiness of these over-peopled portions of the city, is fully confirmed by the report of a committee of the Geo. Med. Society, who examined them. Three of the four physicians, who composed that committee, died in the course of the season. The

other, (the respected president of that society,) from domestic afflictions, left the city. The ruins, occasioned by the fire of that year, have been by many considered as causing the disease. These were in the northern central portion; in the neighbourhood of which, the cases of fever were by no means comparatively so numerous, as in the eastern and western sections. In the absence of our new population of foreigners, the causes of disease as they existed would no doubt have produced great mortality; but it is certainly true, that that population afforded near three-fourths of the whole number of deaths.

Whilst many adduced the fact of the mortality of this season, to prove the inefficiency of the dry culture system, a faint effort was made to induce a belief that it was the cause of the disease. Either opinion is, however, equally erroneous, as has been since proved by ample experience.

Within the last fifty or sixty years, there has, according to the early records of the colony, been a material improvement in the depth of the river and bar. Attendant upon this deepening of the river below the city, there has been a recession of the salt water; and lands formerly unproductive from its presence, are now cultivated in rice, cotton, and corn. It is also evident, from the remains of dams and canals, that

some rice lands, east of the city, which are now flowed from the river, were formerly irrigated from reservoirs formed upon the more elevated grounds behind them. These dams are still pretty perfect upon the lands of the cedar grove plantation, presented to the late Gen. James Jackson, by the state of Georgia, in consideration of his revolutionary services. This plantation, with some adjoining lands, was formerly owned by the colonial Governor Wright, who is still reputed to have been one of the most successful planters in this province, in his time. The late Richard Proctor, Esquire, of May River, has been frequently heard to say, that, in his occasional visits to this place, previous to the revolution, he has often seen Governor Wright examining the water at the mouths of his canals, to ascertain if it was sufficiently fresh to be let in upon his rice. This information, I received from Major Screven, a connexion of Mr. Proctor's, to whom I am also indebted for the fact, of the existence of the dams and canals, for the purpose of flowing the swamp lands from reservoirs behind them.

It would appear, from the information which I have been enabled to obtain, that whilst the bars at the mouths of the short rivers, south of Cape Hatteras, become gradually more and more shallow, those of the long rivers, gradually deepen. The consequence of which is,

that whilst in the former rivers, the salt water advances up them, in the latter it recedes. This much is certain, that lands at one time cultivated on the former, and irrigated by their waters, are now rendered unproductive by the presence of salt water; and that lands on the latter, formerly unproductive from the presence of salt or brackish water, are now cultivated, and when occasion requires, are irrigated from them.

In consequence of the great mass of rubbish cast upon our streets, in rebuilding, after the fire of 1820, their sandy character of soil was destroyed for a time. Fortunately, however, for us, the sand is again becoming more and more predominant; and in two or three years, no trace of that rubbish will be observable. The presence, or rather the predominance of this sand, is of vast importance; for it readily absorbs the rains which fall; but for which, from the great evenness of our streets, it would become stagnant, unless drained, and in that way be injurious to our health. An effort was made some years since, to graduate our streets, so as to enable them to cast off the water as it falls. This effort has (as all such others must) failed. When I settled in Savannah, ten years ago, so perfectly porous was the soil of the streets, that water never remained forty-eight hours after its fall; and under the system at present pursued, this will very soon be the case again. Such a con-

dition of our streets is certainly much more conducive to health, than could be any character of pavement.

The winter climate of Savannah is mild, and the atmosphere soft and elastic. My own observation, which is amply confirmed by the experience of numerous invalids, has convinced me, that the immediate climate of our city, is much more favourable to consumptive patients than any other in the southern states.

Elevated above the adjacent country : situated upon a dry sandy soil, and the cultivation of rice in its immediate vicinity restrained, Savannah will be considered as enjoying advantages for health superior to any southern city ; and it must become a place of summer retreat for those residing in its vicinity, whether upon the sea shore or in the interior, as it was some seventy years ago.

Subjoined is an extract, from a Report made by the Dry Culture Committee to the City Council, early in 1824.

“ Six years have now passed away, under the operation of the dry culture system. Imperfectly as that system has been enforced, it has given proofs, the most conclusive, of a favourable influence upon the health of Savannah. It is the object of your committee, in their report,

to refer to these facts ; and to show by them, how important it is that the city council should persevere in rigidly enforcing the dry culture contracts ; and, to pursue, by all lawful means, those, who alike regardless of their engagements with the city, and the dictates of humanity, set at nought the deep and permanent interest of the community, in which they live, and to which they are indebted for the protection of their property. It cannot have escaped the attention of the most careless observer, that since the introduction of the dry culture system, our summer and autumnal atmosphere has undergone a great and favourable change in its sensible qualities. The fogs which heretofore rising from the lands, now subjected to the dry culture system, and penetrating to the heart of our city, gave a high degree of humidity to our atmosphere, have since disappeared, and with them that humidity. Heavy fogs, may now occasionally, in an autumn morning, be seen rising from lands cultivated in rice. Sometimes, they approach the eastern and western ends of the city, but do not advance further. During the long flow, which was made the last season, upon the rice fields recently opened upon the southwest extremity of the city, the atmosphere became more heavy, and damp, and in a short time a very disagreeable stench was remarked by the inhabitants of that portion of the city ; the trunks

conveying the water to the rice suddenly gave way, and the putrid water escaped its confinement, before the trunks could be repaired. The offensive stench was not perceived after this. Previous to the introduction of the dry culture system, such was the humidity of the atmosphere of this city, during the long flow upon the rice, that a person after being exposed for a short time at night, could wring water from the locks of hair hanging below his hat. Now, throughout the whole season, there is a dryness and an elasticity of atmosphere, the very reverse of what existed previously. It will be obvious that this great improvement in the sensible qualities of our atmosphere, must be salutary to those who breathe it. Previous to the introduction of the dry culture system, the Bay was as notoriously the most unhealthy part of the city, as that portion of the city lying south of South Broad-Street, was then the most healthy. The reverse now obtains, and from causes equally obvious. The bay, from its proximity to the lands subjected to the dry culture system, is most immediately under the influence of that system; and its improved salubrity, is one among the many unequivocal evidences of the agency of the latter, upon the health of Savannah. Whereas, that portion of the city south of South Broad Street, formerly furthest removed from the cultivation of rice, has within the last three

years, been thrown more immediately under the influence of wet culture, by the opening of an extensive rice field, immediately to the southwest."

Unimportant, as at first it may seem, your committee cannot omit alluding to the greater appearances of health, as indicated by the countenances of our inhabitants, during the summer and fall, for the last three years.

It is an evidence of a more vigorous health, than before prevailed, even among those of our inhabitants, who escaped positive disease. Nothing formerly was better calculated to impress upon the mind of a stranger, arriving here in November, the melancholy character of our climate, than the blanched faces of our inhabitants.

The remark is now general, with those who have had opportunities of observation, that of late, the faces of our inhabitants are quite as indicative of health, as those of persons residing in cities to the north, reputed much more salubrious. With this improved healthy appearance, there has certainly been united a greater corporeal vigour. Unequivocal, however, as these evidences of the improved healthiness of Savannah must be, there is yet another character of testimony, which places the question absolutely above cavil. Your committee refer to the records of mortality; by comparing the number

of deaths, and the population in different years, it can be readily ascertained, in what years, the proportion of the former to the latter, has been greater ; and hence, can be learned with great precision, the comparative unhealthiness of any two years. It is true, that there are no absolute *data*, showing the exact population of the different years ; yet, there is a remedy, ample for all purposes. Your committee have multiplied the number of votes, polled at each election for Aldermen, on the first Monday in September, in each year, by six, upon the supposition that one-sixth of our population are voters. It is not material, however, to the accuracy of the calculation, that, that should be the precise proportion : it is sufficient to know, that the proportion of the voters to the whole population is, one year with another, very much the same.

As the coloured population is not embraced in the bills of mortality, so it is not designed to include it in the estimate of our population. By this estimate, it will appear, that the proportion of persons dying of autumnal diseases, to the whole white population, is as follows :

$$\text{Wet Culture.} \left\{ \begin{array}{l} 1815, 1 \text{ in } 15. \\ 1816, 1 \text{ in } 18. \\ 1817, 1 \text{ in } 9\frac{2}{3}. \end{array} \right.$$

Dry Culture.	{	1818, 1 in $62\frac{3}{4}$.
		1819, 1 in 13.
		1820, 1 in $5\frac{1}{10}$.
		1821, 1 in 37.
		1822, 1 in $33\frac{4}{5}$.
		1823, 1 in $32\frac{1}{5}$.

This estimate, it will be perceived, embraces a period of nine years; the first three of which passed previous to the introduction of the dry culture system, and the average of those years may be deemed a fair estimate of the habitual mortality, occurring in the population of Savannah, for many years previous, or about one in eleven. The second term embraces a remarkable period, in the history of Savannah. That of 1818, the commencement of the dry culture system; when the lands subjected to it from their cultivation in rice, the preceding year, were in excellent condition, for a fair experiment of the scheme; and it may safely be said, it has been the only year, in which a fair and full trial has been made. The following, or 1819, is remarkable for the addition of a labouring class of whites, to our population, and it is a melancholy fact, that a large number of them arrived during the months of July, August, and September, a very large proportion of which fell victims to our climate; and thus, swelled the bills of mortality. To our permanent population,

this was certainly a healthy season. The year 1820 is remarkable for the ravages of the yellow fever, to an extent seldom witnessed elsewhere ; the causes of which have not yet been satisfactorily explained to the public. The average proportion, for these three years, is about one death to every twenty-seven for each year. The average for the last three years, of this term, is about one death in every thirty-four of our population, for each year ; which, if compared with the last three years, that elapsed previous to the introduction of the dry culture system, is incontestable evidence of the advantages of that system. In instituting this comparison, there is, however, one fact of too much importance to be omitted. Your committee allude to the new feature which has been given to our population, since 1818, by the introduction of a white labouring class, unaccustomed to our climate, and in a great measure, ignorant of its danger ; certainly, unacquainted with the prudential measures usually adopted to guard against disease, and especially subjected by their pursuits, to all its force. It is estimated, that this population, upon an average, for the last three years, has been equal, during the summer season, to about seven hundred, or upwards, of one-fifth of the white population ; and, that the deaths occurring in it, from summer and autumnal disease, are equal annually, to three-fifths of the whole number of deaths of

the same population. Then, it will be seen, that whilst a new character of population, inconsiderable, when compared to the whole, sustains three-fifths of the deaths of the whole; still, the mortality of Savannah, under the dry culture system, is one death in every thirty-four; when the mortality previous to the adoption of this system, and previous to the introduction of that population, was, one death to every eleven, of the white population, annually.

From these statements, it will be sufficiently obvious, that, the *dry culture system* exercises a very important and a highly salutary influence upon the health of Savannah; and, that it is imperiously the duty of every good citizen to unite zealously in the support of a measure, so fraught with blessings to the community in which he lives.

For the last two seasons, (those of 1824-5) there has been a further and a material improvement in the health of Savannah. The latter year may be considered full as healthy as that of 1818.

ON THE

AUTUMNAL FEVERS

OF

SAVANNAH.

ALTHOUGH, not exclusively the production of that season, I prefer the term *autumnal*, to designate our marsh miasmatic fevers ; because, whilst it is sufficiently distinctive for all my purposes, it is free from theoretical objections. Under autumnal, then, I embrace the intermittent, remittent, continued, and yellow fevers. Each of them assumes, under some circumstances, more or less, the type of the others. Arising from similar, or modifications of the same cause, assailing the system, through the same avenues, and subjected to the same rules of treatment, they may be considered as essentially the same disease ; modified only, by difference in degree of cause, and condition of system. Most writers, who have considered these diseases specifically different, have incidentally recited facts violative of their own systems. Desportes, (always correct in the detail

of symptoms,) in his history of the diseases of St. Domingo, described the yellow fever (then called *mal du Siam*,) as a distinct and specific disease, propagated by contagion. He considers the double tertian, as the appropriate disease of that Island, arising out of local causes. He afterwards remarks, that "the *mal du Siam* is complicated with the double tertian, when there is not morbid matter sufficient to generate the *mal du Siam*."

This latter, he divides into three varieties, according to the intensity of the disease. The first, he calls mild ; the third malignant ; and the second, he places intermediately, between the first and third. The late Dr. Rush, equally systematic, has certainly run into the other extreme. It must be obvious to every reflecting and experienced physician, that his success, as recorded by himself, was far greater than could have attended upon the treatment of unequivocal cases of yellow fever. Numerous facts may be gleaned from his own writings to show, that many of the cases which he called yellow fever, bore in reality, a much milder character ; and which, had they occurred at a different time, would not have created any apprehension. He misapplied an observation of Sydenham, that the prevailing disease of a period, gives its livery to others of a milder character.

The original observation is no doubt correct ;

but there has been an error in its application by Dr. Rush. Sydenham referred to the control which one disease exercised over another, specifically different, as the small-pox, or dysentery, over fevers prevailing at the same period. Rush applied the remark to varieties of the same disease ; and in this, he not only erred, but violated the opinion so frequently and strongly enforced by himself, that autumnal fevers differ only in degree. Nothing is more common in hot climates, than the coexistence of two grades of fever, essentially different in the degree of their violence, and in the character of their subjects. Whilst a mild intermittent prevails among the natives and old inhabitants of a district, the yellow fever confines itself to strangers. This fact is repeatedly admitted by Desportes and other writers upon the diseases of tropical climates. I have witnessed the same here, and it was particularly striking in 1817. In the autumn of that year, a mild tertian prevailed extensively among the old and native inhabitants. The disbanding of M'Gregor's followers, after their attack upon Amelia Island, together with the arrival of several vessels from Europe and the northern cities, about the latter part of September, and of many more in October, suddenly introduced a number of persons, unaccustomed to our climate, in the most fatal period of the season. Among these the yellow fever became

epidemic, and continued until checked by frost, which took place about the 22d of November. Neither of these diseases appeared to affect or influence the other.

It is probable, that all our autumnal fevers, are modifications of the simple tertian. It is presumed, that some one of them must be primitive to the exclusion of the others. That certainly should be so viewed, to which the others appear most closely to approximate, and into which the others are most frequently resolved. With us, an autumnal quotidian, is unusual. Quartans are of full as rare occurrence. Simple and double tertians are habitually the prevailing intermittents.

Remittent fevers habitually exhibit here, fiercer exacerbations upon alternate odd days. If, as however occasionally obtains, there should not be this obvious difference in the severity of the exacerbations, then the exacerbation of one day will probably be in the morning, and that of the following in the evening; thus still assuming the tertian character. Continued fevers have not, within my observation, been common here; and certainly, they are becoming more and more, of rare occurrence.

Although some cases of yellow fever annually occur, I have known it endemic but two years, viz. in 1817 and 1820. The cause of its prevalence these years, can be readily explained without resorting to contagion.

The following is an extract of an anniversary oration, delivered before the Georgia Medical Society in February, 1818, which explains the causes of the great unhealthiness of the preceding season: "Although, in the commencement of the last summer, nothing unusual was observed, it had not advanced far, before a train of events occurred, by no means auspicious. Instead of occasional showers, which are usual at that period of the year, we had frequent and heavy falls of rain for successive days, alternating with an intensely hot sun, with considerable regularity, until near the close of summer. Soon after the commencement of this weather, our city council turned their attention to the levelling of our streets, contrary to the express objection of several medical gentlemen. In this process, the refuse and offal of our yards and kitchens (which, for years, had been permitted to accumulate gradually in mounds, where they were comparatively innoxious) were, with a prodigal hand, distributed upon the streets, and subjected to the influence of the heat and moisture of that season. In addition, earth was deposited in the depressions of the streets and lanes, for the purpose of levelling them; which mingling with the fallen rains, produced numerous muddy and offensive places."

It has appeared to me, somewhat extraordinary, that the action of all idiopathic fevers, should

have been considered capable of explanation upon the same principles. It is certainly an evidence of a very strong propensity to generalize, that the fevers of middle latitudes, and those of the arctic regions, that the fevers of a northern winter, and those of a tropical summer, that the fevers produced by heat, and those caused by cold, should all be considered capable of the same physiological solution. Certainly, nature does not authorize the alliance between these diseases, which has been forced upon them by systematic writers. And may not this generalization of fevers, so different in their causes, their symptoms, and their seats, account (at least in some degree) for the imperfect explanations which have been given of at least some of them? If the same causes (other circumstances being equal) produce the same effects, it is equally true, that different causes produce different effects; yet systematic writers have all (I believe) committed a twofold violation of this rule. They have first attributed to obviously different causes, the same effects in the production of fevers, by supposing all idiopathic fevers to have the same proximate cause, (which proximate cause is certainly an effect,) and secondly, they have given a common explanation to the phenomena of fevers obviously different in their characters, as well as in their causes.

There is, perhaps, but one circumstance com-

mon to all fevers, namely, a disordered circulation; which, to some extent, obtains in all acute diseases, and might, with equal propriety, be cited in justification of a theoretical explanation of the nature of such diseases, upon one common principle; as it authorizes the supposition, that all idiopathic fevers, are capable of the same explanation. There is about as much propriety in Rush's doctrine of the unity of diseases, as there is in the opinion of a common proximate cause for all fevers. In admitting that different fevers arise from dissimilar causes, systematic writers authorize the inference, that such fevers are intrinsically different in their natures, and consequently incapable of explanation, upon any one general principle. The causes of fevers being different, the impressions which they make upon the system, may be as various as the fevers which they produce, and the media by which they operate. Few opinions have, perhaps, been so generally adopted, which have less foundation in fact, than the one that each year produces a new disease, and that marsh miasmatic epidemics, occurring at different periods of time, in the same locality, are essentially different. Without pursuing this subject generally, I now inquire, in what consists the difference between the autumnal or marsh miasmatic fevers, of all countries? Referring to the history of medicine, we find the same charac-

terizing symptoms to prevail at all periods, and at all places, where the disease is known. Indeed, some of the most accurate descriptions of autumnal fevers, are to be found among the ancient writers. It is not pretended that these diseases do not assume, at times, a milder or a graver character ; but, this is equally the case with the small-pox and other specific diseases ; and, it is not claimed, that these are ever capable of essential or important modifications, from time and place. I mean only to insist, that the causes, the character, and the seats of autumnal fevers are ever the same, and consequently, always should be subjected to the same principles of treatment. The type of the fever cannot affect the character of the remedies to be used in its cure. It will not be contended by me, that erroneous methods of treatment may not essentially modify the disease, as well as overturn the energies of the system.

It is an undeniable fact, that previously to the introduction of the depleting and mercurial treatment in the fevers of this place, and long after the cultivation of rice in our immediate vicinity, our fevers were decidedly intermittent in their type ; and that, during that practice, (which may be considered to have terminated in a great measure, with the season of 1822,) they generally assumed a more or less perfect remittent or continued type. I know that much in-

dustry is used, by those most interested in the question here, to impress the belief that the intermittent type of our fevers now is the effect of the dry culture system. It has been heretofore stated, that this system was most completely in operation in 1818; and that certainly was by far the most healthy season we have had in ten years; but, it is not contended, nor can it be with any propriety, that the fevers of that season, were intermittent. At that time, the depleting and mercurial system, was in full vogue among us. In 1821 and '22, we enjoyed much health, but our fevers were not usually of the intermittent type. Active purging and salivation were then resorted to, by most of our physicians, although their zeal had been evidently abated by the miscarriages of 1820. There is another fact which, I presume, many of our citizens know familiarly, that the poor who reside upon the extreme east and west of our city, (the most unhealthy locations) suffer chiefly from intermittent fevers.

These receive very little medical attention, unless when sought out by charitable persons; for it is a fact, that our native poor will not beg: they will allow themselves to be relieved by those who seek them, but will neither solicit alms, nor the gratuitous services of our physicians. The intermittent type of their fevers is

attributable to their being left to the resources of nature.

There are but few matters of opinion upon which my convictions are more clear, than that the intermittent and remittent type of our fevers, may be influenced by active and drastic purgings. Such means increase very much the tendency of blood to the internal parts, counteract the efforts of the internal capillaries to relieve themselves, by throwing off the excess of blood cast upon them, and by overpowering, impair their vigour. I well know, that this is a point upon which physicians may fairly differ, as it cannot be subjected to absolute proof; for, upon the supervention of a fever, no one can say, with certainty, what will be its type. Upon the introduction of the antiphlogistic and mercurial treatment in the United States, the intermittent type certainly became less common; and within a few years, and since the modification or abandonment of that system, they have certainly become much more frequent. I do not design to say, that all autumnal fevers are intermittent; for it is well known that such is not the fact, nor do I mean to deny, that other causes, independent of the treatment, affect their type. Whatever be that type, the nature of the fever is the same, and the same means of treatment are necessary and proper. To me, it is evident, that the autumnal fevers, described by Sydenham, are essentially the same with those

which have at all periods occurred in the south of Europe, and in the United States: their more protracted course may, I think, be readily explained by the circumstance of treatment. Whilst active evacuations precipitate the issue of fevers, or whilst an active tonic treatment speedily terminates them elsewhere, the method of cure adopted by that great man, comparatively left the disease to the tardy efforts of nature, partially supported by his prescriptions. Others may have been more fortunate, but I must acknowledge, that I have not been enabled to discover any essential difference between his fevers, prevailing in different constitutions (as he terms them,) of the air. Following the suggestions of Sydenham, Rush has also given us an account of the marsh miasmatic fevers of different years, which certainly have no important peculiarities. I have adduced the names of these two great men, because they have, (I feel) by their authority, essentially aided in propagating and perpetuating an error. Among the circumstances upon which reliance has been placed, to prove the dissimilarity of autumnal fevers of different years, much importance has been attached to the appearances upon dissection, when the disease has been unusually fatal or severe. Physicians have been led into error on this point, because they have not usually made similar investigations in other seasons, when the disease

has been comparatively mild. I can safely say, that for the last four or five years, I have rarely permitted an opportunity of examining a subject, who died of fever, to escape me; and I never have seen a single instance, in which the stomach or bowels, or both, have not presented essentially the same appearances, though not always so extensive, as in those who have died of yellow fever. Confining himself to *post mortem* appearances, no physician can determine whether death has been produced by an intermittent, remittent, or yellow fever.

The manner in which agents operate in producing fevers is yet unexplained; nor is it better understood, by what means they enter the body, if, indeed, they do so at all. Their modes of introduction have been assigned: by the lungs, by the stomach, and by the olfactory nerves. If the disease was the product of matter received by either of the two first, why does so long a period intervene between the introduction of cause and the developement of effect? We know of no similar delay after the introduction of any other offending matter, which when received into the stomach, acts almost instantly upon that organ.

It will scarcely be contended, that a person fasting, whilst in an infected atmosphere, will certainly escape the yellow fever; and, yet, if

the disease was produced by matter introduced into the stomach, it might be always avoided. But it is said, the cause is *entangled* in the saliva. If the cause be substantial, it has hitherto escaped the investigation of the most dexterous chymists. If it is received into the system, either through the lungs or stomach, how can the fact be explained, that all ages and conditions are not equally subject to the disease ; and why whole classes of people are sometimes exempt, when others are peculiarly liable to fevers ? We know of no agent, which, when introduced into the system, affects one portion of the human race, to the exclusion of another ; and such a supposition would certainly appear very unphilosophical. The opinion that the disease is received through the olfactory nerves, has, I believe, but few advocates ; and it does not appear probable, that their number will be augmented. It has appeared to me far more reasonable to suppose, that autumnal fevers are produced by qualities imparted by marsh miasma, to an atmosphere, which, thus impressed, impairs the capillary action of the skin,* and affects the equilibrium of the circulation ; the destruction of which creates an effort in the internal capillaries, now surcharged, to relieve themselves, *which reaction constitutes fever*. The character

*See Cullen's First Lines.

of the fever, (other circumstances being equal,) and consequently the speedy production of the disease, depend essentially, upon the force of cause applied. In some instances, the destruction of the external capillary action is so complete and sudden, and the superficial blood so immediately thrown in upon the internal capillaries, that the system is capable of no reaction. In such cases, the patient dies in what is termed the cold stage. Some years since, autumnal fever appeared in the interior of the southern states, under the above circumstances, and was in many places denominated the "cold plague." In such cases, the prospect of relief to the patient, was in proportion to the success of the physician in his endeavours to produce a reaction in the system. The cholera of India is produced by the combined action of the chilling winds of the night, and of the miasma, throwing the blood suddenly in upon the capillaries ; and the success which has attended the use of the nitric acid bath, is attributable to its exciting the external capillaries to vigorous action ; and, I have no doubt, but that, if the whole body was immersed in it, instead of the legs only, it would be much more salutary than by the present mode it is found to be ; inasmuch as the curative process in this whole family of diseases consists in restoring action to the capillary surface, the consequent equalizing the distribution

of blood, and the invigoration of the forces of the system, by imparting tone to them. The capillary system may be divided into two parts, the external and internal. The first is composed of those of the skin, and those of the mucous membranes: the second, of all the other capillary vessels. Upon a vigorous exercise of the functions of the external capillaries, depends the due distribution of the blood; and, to their imperfect action is attributable, congestions,* and enlargements of the various (and especially the abdominal) viscera.

The larger arteries and veins have the simple office of circulating the blood; and I shall speak of them, as the circulating vessels. The proportion of blood which they contain, is habitually very much the same. The external capillaries are those, upon which agents act, and through which the internal are influenced.

Agents acting moderately, and for a considerable time upon the external capillaries, impair the functions of the internal, by casting upon them an undue portion of blood. This is illustrated by persons exposed habitually to the in-

* Aselepiades defined fever to be an extraordinary heat, general or local, accompanied by a strong pulse; the cause of which is often a congestion, somewhere, as an inflammation. He speaks of obstinate *obstruction* indicating much danger. He observed the double tertian at Rome, as since described by the moderns. He used rubefacients prepared of mustard. He was contemporary with Antiochus of Ascalon Sprengel's *Histoire de la Médecine*, vol. iii.

fluence of marsh miasma, whereby enlargements of the spleen and liver are produced.

Upon the eastern and western extremities of Savannah, there are extensive low damp grounds; and those exposed habitually to them, (especially if young,) have for the most part, enlarged spleens, or livers, or both. Similar enlargements are habitual to the white inhabitants of rice plantations. Habitual drunkards, and dyspeptic persons, have enlarged livers. In all these, the capillaries of the alimentary canal, have their functions impaired. The minute sympathy, subsisting between the skin and the alimentary canal, and under some circumstances of disease, between these and the lungs, is dependent upon the capillaries of these organs. In whatever part of the system the heat may be generated, it depends for its full distribution upon the blood vessels. Accompanying the blood, wherever there is an impaired action in the blood vessels, there is a deficiency of heat; and, wherever there is an excessive action, or an unhealthy accumulation of blood, there is an augmentation of animal heat. This fact, although (I believe) generally recognised, does not receive that importance in the consideration of our fevers, to which I have deemed it entitled. In health, there is a constant supply, and a constant consumption of animal heat; and whilst in disease the supply is continued, the consumption is fre-

quently impaired. In health, a very considerable portion passes off by the surface. In disease, this portion is either increased or diminished, according to the condition of the capillaries of the skin, and the amount of their excretions. The causes of fever operating upon the superficial capillaries, repel the blood from the surface; whereby the accumulation upon the internal capillaries exceeds a certain proportion; or, is thrown in so rapidly, that the capillaries cannot adapt themselves to the accumulating volume, a reaction takes place in them, by which an effort is made to relieve themselves from embarrassment. This process is strikingly illustrated by exposure to cold. The first effect is, a paleness of the surface, occasioned by a recession of the blood from the capillaries of the skin; in consequence of which, an unusual quantity is suddenly thrown in upon the internal capillaries; these react; the consequence of which is, that not merely the excess of blood is cast back upon the superficial capillaries, but also a portion of that of the internal, from the energy of their reaction, which produces a glow upon the surface. In fevers, the injury sustained by the superficial capillaries is not immediately remedied; and consequently, the reaction of the internal capillaries, does not at once overcome the atonic state of the external, and the reaction is perpetuated, and the fever continues. In sum-

mer, agues do not usually usher in fevers; because, the recession of the blood from the superficial capillaries, is gradual. In autumn there is superadded to the course of fever, more or less chilliness of the atmosphere, which certainly aids in repelling the blood from the surface, and casting it more suddenly upon the internal capillaries, producing agues, and which sometimes increases the severity of the fevers. Cholera-morbus, so common in Baltimore, is owing, in a great measure, to the frequent and sudden changes of atmosphere, in summer, occasioned by its proximity to an elevated country. Fever, as has already been observed, is the result of the efforts of the internal capillary system, to disburthen itself of the excess of blood, cast upon it from the superficial capillaries. These efforts terminate either in the restoration of the equilibrium of the circulation, by overcoming the torpor in the external capillary system; producing health in the gradual enlargement of some of the abdominal viscera, chiefly the spleen, or liver; by which the excess of blood is cast upon these organs: and in the partial restoration of function to the external capillary vessels, producing imperfect health, with chronic enlargements, and great predisposition to recurrence of fevers, from very slight causes: or in the active and rapid engorgement of the various viscera, by the overthrow of the internal capil-

ary circulation, (the external having been already destroyed) in consequence of which, the blood is cast where there is the least resistance, which is internally : hence, congestions in the mucous membranes, hemorrhages, and black vomit follow.

By the superficial capillaries, I mean that net work of minute vessels, proceeding from those passing through the *areolæ* of the *cutis vera*, and composing in a great degree the *rete mucosum*.* The loss of action in the external capillary system in our fevers, is inferred from the loss of tone in the skin, which is obvious in every stage of the disease. In the cold stage of fevers, slight pits are readily formed by gently pressing the fingers upon the skin, which gradually subside.

These pits, in the absence of *anasarca*, can only be explained upon the supposition of an impaired action in the capillaries of the part, and a consequent reduction in the amount of their contents. Throughout every stage of our fevers, this condition of the skin exists to a greater or less degree, and consequently, at no time has it that elastic feel, which belongs to it in health. That portion of the skin inflamed by a sinapism, in the treatment of a case of fever, is frequently obviously elevated in its surface above

* There is every reason to believe that there is a texture of vessels either in the *rete mucosum*, or between the *cutis vera* and the *rete mucosum*.
WISTAR'S ANATOMY. See Bichat's *Anatomie, Systeme Dermoide*.

the surrounding parts. In the progress of the disease, and especially such as terminate in health, the adjacent skin is gradually elevated, and the inequality, at first so obvious, is removed. There is a great tendency in the skin of the hands and feet of persons labouring under autumnal fever to wrinkle. Dr. Screven suggested this to me. The skin of persons in autumnal fevers, has frequently been spoken of by writers as lax, shrivelled, inelastic, and flabby. In the hot stage of fevers, it is frequently dry, rough, and harsh to the feel. In such cases, there being no moisture upon the surface, the heat accumulates there. The cold, clammy, and profuse perspirations that frequently attend the latter stages of fevers, by their evaporation reduce very much the animal heat, and consequently add to the existing debility.

The determination of the blood internally in our fevers, is inferred from the frequent sighing, oppressed breathing, sense of fulness in the abdomen, tenderness and pain from pressure upon the epigastrium, over the liver and spleen, sense of internal heat, restlessness, and above all, from the enlargement of the liver and spleen observable after death.

The immediate tendency of the blood cast from the capillaries of the surface, is to the spleen and liver. This is fully manifested in white persons habitually residing in the imme-

diat vicinity of rice fields, and other low marsh or swamp situations,* and especially when restricted to a scanty or chiefly vegetable diet. Such have very pale skins, with more or less emaciation, and enlarged livers and spleens; are habitually exempt from severe autumnal fevers, and are very liable to the acute diseases of winter. Theirs are mild intermittents, sometimes protracted for many months. They are also subject to a chronic feverish habit of body, which occasionally scarce yields to the cold of our winters. The enlargements of the liver† are not so rapid as those of the spleen, nor do they usually become comparatively so enormous. Upon such subjects, the causes of fever operate gradually, and they become in some measure, habituated to their influence. To a person at all attentive to this subject, the aspect of an individual is sufficient evidence of the character of his residence; and that is equally indicative of the condition of his liver and spleen, and especially of the latter. As the blood recedes from the surface, it accumulates in these viscera. Its gradual recession enables them to receive it as it is cast in upon them; hence, there is not at one time, a sufficient volume of

* Rhazes remarked the injurious effects of marshes. Sprengel, vol. ii.

† Sudden and great enlargement of this organ occasionally takes place in children labouring under fever, attended with copious mucous secretions in the alimentary canal. In such, the enlargement of the spleen is considerable also.

blood thrown suddenly upon the circulating vessels to excite severe fever, and the gradual adaptation of the internal capillaries to these excesses of blood impair their powers of reaction, and lessen their resistance to it. Hence, as above remarked, such persons are chiefly subject to mild intermittents, or remittents, or what is perhaps much more common, chronic feverish habits. In such, whatever may have been previously the condition of the liver or spleen, these now become enlarged in the progress of these fevers, and especially the latter; and with such immediate enlargements there is at least an abatement; sometimes a subsidence of the disease. These enlargements I frequently predict to my patients. When the enlargement of the spleen is very considerable, a chronic feverish habit is apt to ensue. In such cases, it would appear that there is a constant effort in the spleen produced partially by its contractile power, but more by the action of the abdominal muscles and diaphragm, and the mechanical influence of the other abdominal viscera, to relieve itself of the excess of blood with which it is charged, by throwing it into the general circulation. The reaction in the capillaries of the spleen and liver then operate upon the external capillaries, and the feverish habit is the result of this struggle between the two capillary systems.

The return of cold weather divests the atmosphere of its influence in producing fevers, and relieves the external capillary system from its embarrassment, which now resumes its accustomed vigor; hence, the spleen and liver relieved from their excess of blood become lessened in volume, though still maintaining, in warm climates especially, a chronic enlargement to some extent. Acute hepatitis and splenitis are of much more common occurrence in winter and spring than in summer and autumn. To such as will attend to the intimate relation existing between the surface and the liver and spleen, and watch its influence in our fevers, I appeal for the correctness of my conclusions. This is, perhaps, the chief function of the spleen. The liver, which is charged with another highly important function, appears in our fevers to be auxiliary to the spleen, in becoming, in the language of Rush, a reservoir to the system. In the former, as well as the latter, I am disposed to claim the existence of an erectile tissue. This idea has been suggested to me by its habitual tendency (in warm climates especially) to enlargement. It is the only secretory organ subject to frequent and considerable enlargements without great derangement of the system; which are not only unattended by pain, but continue occasionally for many years, without apparently affecting materially the regularity of its

secretions. Enlargement of and tenderness upon pressure over the liver usually attend dyspeptic affections. I have uniformly remarked, that an improved condition of the skin, precedes their removal; and I have considered these as consequences of the dyspepsia, and produced intermediately by the influence of the stomach upon the surface. In another modification of dyspepsia, a similar influence is certainly exercised by the stomach upon the lungs. In this, many of the symptoms of a true phthisis are assumed by the lungs. The true nature of the affection is betrayed by the shortness of breathing, severe cough, and great difficulty in expectorating a tough glary mucous, but more especially by the appearances of the skin, and the general condition of the alimentary canal. The term *bilious*, is now so extensively applied to various diseases, as to mean very little more, than that the liver in common with other important organs, participates freely in diseases of the general system. A bilious character is, however, especially claimed in our autumnal fevers; and, I believe, with as little propriety as in many diseases of winter.

Nothing has done so much towards making this term fashionable as the free use of drastic purgatives, in most acute diseases within the last forty years. Almost any person in health may (especially in the summer season,) be in a

few days purged into what is commonly called a bilious habit, by the free use of calomel and jalap, and by abstinence. By active purging, the blood is diverted to the abdomen; the liver, its largest organ, receives an increased volume, and its secretions are augmented. I further believe, that persons may (occasionally at least) be purged into a fever; and, I think, I have seen positive instances of it. That there is frequently an increased secretion of bile in our fevers, I have no doubt; and this, I would explain in the same way, that I would a total absence of bilious secretion, which frequently obtains in the same disease. So long as the secretory function of the liver is exercised, the quantity of bile is increased by each additional amount of blood determined to it; but, in many instances, the volume of blood cast upon the liver is so great and sudden, as wholly to overpower it in the exercise of its functions, whereby the secretion of bile is suspended. This is known to occur habitually, in what have been rather vaguely called, concentrated cases of autumnal fever: and habitually, in yellow fever. In these cases, free purging will sometimes by diverting some of the excess of blood from the liver, immediately to other abdominal viscera, relieve the former from a portion of the blood that has overpowered its action, when the bilious secretion may be restored; but, such a

measure, without improving the condition of the patient, increases the tendency of the blood internally, and exhausts further his little remaining strength. The existence then, of increased bilious secretions in our autumnal fevers, is rather a consequence, than a cause of the disease ; and is sometimes (I may say frequently,) a consequence of the injudicious use of active purgative medicines. A sallow, or as it is usually considered, a bilious appearance in the eyes and skin, is usual in our fevers ; and has been called an evidence of their bilious character. This appearance should, however, be regarded merely as the effect of a disordered or impaired action in the superficial capillaries ; and it will be found to yield readily, sometimes in a very few hours, to the use of sinapisms. In persons, convalescent from fever, after the usual purging and mercurial treatment, the skin is commonly yellowish, and frequently deeply jaundiced.* *I have never remarked this, in such persons, treated according to the mode hereafter to be pointed out.*

The free use of drastic purgatives and mercury impairs very much the digestive powers of the stomach ; and the unhealthy appearance of the skin of those treated with them, I have attributed to the influence of that debilitated condition of the digestive organs. There is no popular prejudice

* Vide Richter's Observations.

more extensive than that calomel injures the teeth by contact with them, instead of through its agency upon the digestive organs. Decayed teeth have been charged upon us as a national defect. I have met with but few persons with bad teeth, who, upon inquiry, have not admitted their habitual use of calomel as a purgative. The various "Bilious" and "Antibilious" pills, have calomel in them; and to their extensive use, and especially those of LEE, may, I believe, very correctly be attributed much of the decay so frequently observed in teeth. No one, I presume, has ever recovered from our fevers and a deep salivation, whose digestion has not been very essentially, and for a long time impaired. And this is the chief cause of such frequent relapses and protracted recoveries from them. The influence of climate upon the skin, and the relation between climate, diet, and the skin, have attracted, I think, less attention than their importance authorizes. Whilst the diet of the native inhabitants of equatorial regions is light, delicate, and spicy, and consequently of easy digestion, that of those dwelling in high latitudes is strong, highly stimulating, and of tedious digestion. As we recede from the equator, we find a more and more invigorating and stimulant food used. The fish oil so palatable and nourishing to the Greenlanders, would be as disgusting to the palate and offensive to the di-

gestion of the native West Indian, as his spicy slops would be insipid to the former. The sailors of the Russian fleet sent a few years since to Spain, robbed the public lamps of Cadiz of their oil, and used it for food.* The more cold and bleak the region, the more stimulating are the food and drink of its inhabitants. The hotter the climate, the lighter and more easy of digestion is the food, and the more cooling are the drinks. Either character of food is the result of necessity. That of cold regions protects the system against the severities of its climate, whilst that of the equatorial regions obviates the influence of their oppressive and long-continued heats. The natives of hot climates, where yellow fever is endemial, are in a great measure exempt from this disease. Its subjects are chiefly strangers from colder and more healthful latitudes. The first influence exercised by a change of climate is upon the skin.

The skin of a person unaccustomed to the heat of the West Indies, for instance, has its action soon reduced upon exposure below that of the natives; upon the same principle, that the inhabitants of a hot climate suffer less from cold for a time, after being transported to a northern winter than the native of it does; be-

* Thomas Young, Esquire, of this place, informed me that some years since, whilst he was in Edinburgh, some Russian sailors were detected in robbing the public lamps of Leith, and eating the oil.

cause that which debilitates, and that which stimulates, produce greater effects upon those unaccustomed to their influence. The capacity with which nature has endowed our systems, gradually to adapt themselves to new situations, protects those habituated to hot climates and unhealthy situations from the evils of such exposures. He who is habitually subjected to the causes of yellow fever, becomes eventually exempted from their influence. Hence, the impunity with which the natives and old inhabitants of the West Indies are exposed daily to the causes of yellow fever, cholera, &c. In the southern Atlantic cities of the United States, a similar exemption is in a considerable degree extended to their permanent inhabitants; because, the cold of their winters is not sufficiently severe, wholly to destroy the influence of their autumnal atmosphere upon their systems. Hence, the inhabitants of the northern and middle states are always obnoxious to the influence of the causes of yellow fever, when they exist in them.

One reason alleged, especially in Europe, for a belief in contagion of yellow fever is, the reputed fact, that the same person cannot take the disease a second time. Although, the unfrequency of a second attack from the causes alleged above, gives some plausibility to the assertion, it is certainly erroneous. It is a very common impression among our inhabitants, that

a person who has experienced a severe fever should seek the following season a northern climate for the perfect restoration of his health. Such as adopt this means, destroy the future protection derived from the attack of fever ; and render themselves upon another summer's residence among us, almost as obnoxious to the causes of the disease, as upon the first exposure. Near three hundred negroes were brought into this place early in 1820, who had been captured on our coast, by government vessels. They were recently from Africa. These persons remained in Savannah during the prevalence of yellow fever, and not one suffered from the disease. Their exemption is attributable to their habitual exposure in their native country to the causes of yellow fever ; equally concentrated with those, which prevailed here ; at that time, producing among us a mortality, perhaps unexampled in this country. Africans, however, like other people, are subject to the influence of climate, custom, and habits ; and, the exemption from yellow fever, which they acquire by their habitual exposure at home, is gradually impaired by their translation to more healthy climates. Dr. Rush, supported by some West India physicians, then in Philadelphia, declared the negroes not liable to yellow fever. Observation, however, soon satisfied him, of his error, which was readily acknowledged. The opinion of the

West India physicians, confined to the field of their observations at home, was no doubt correct. It was the change of climate, with the subsequent change of habit, that subjected the negroes of Philadelphia to yellow fever. Negroes, habituated to the atmosphere of rice plantations, are in a very great degree exempt from severe autumnal diseases; and the native African, more so than his offspring; and, they are more liable to the diseases of winter. House servants are more liable to the former, and less so to the latter. This difference of predisposition, among members of the same family, is mainly attributable to the influence of their habits and customs. Many of our domestics became victims to the yellow fever of 1820. The rice field negro is less removed in his atmosphere, habits, and customs, from those of his native country, than the house servant. The first delights in the heat of our hottest days, if we may judge from the manner in which he voluntarily exposes himself both awake and asleep to the direct influence of the sun; whilst the latter studiously avoids it. In the proportion that an individual acquires an exemption from yellow fever, his liability to winter disease increases. Nature has most happily endowed our systems with a capacity to adapt themselves to new situations. That state of the system which is best qualified to shield us from yellow fever,

is least calculated to protect us from winter disease ; and *vice versa*. The skin of the African defending him from disease, in the midst of his exposures at home, upon a translation to a cold region, renders him highly obnoxious to winter disease. The vigorous health of the New Englandman that sustains him in his hardy exposure at home, qualifies him for severe disease, when translated to the West Indies. Each may in time, if he survives the first shock, become habituated to the evils of his new situation ; but, can never enjoy the impunity of the native.

How are these facts to be explained ? What agency so probable, so obvious, so simple, so certain, as that of the skin, the shield of the system, and the medium of external impressions ? The admission of the agency of the skin in our protection from, and our subjection to disease, will certainly considerably relieve us from many existing embarrassments to the explanation of the modifications of our autumnal fevers, which are daily felt.

The first impression to the sensations of the subjects of the cause of autumnal fever (be its nature and manner of application whatever it may) is perceived in the skin. The second is a vitiation of the taste. This sometimes, and especially in mild cases, exists for several days. If the indication be now regarded, the disease may be

prevented. Afterward follow pains* in the head, loins, and deep-seated bones, nausea, occasional gripings, sense of lassitude, thirst, &c. The appetite, which before had been impaired, becomes not unusually, very keen, just before the supervention of the disease. This is attributable to the accumulation of blood in the capillaries of the alimentary canal ; in consequence of which, there is probably an increased secretion of gastric juice. This increased desire for food is frequently in a ratio, with the severity of the impending attack. Certain it is, however, that it more constantly precedes severe than mild cases of fever. Upon the supervention of the chill, as already remarked, the surface is inelastic and shrunk, the skin on the hands and feet becomes wrinkled, and palpable pits, especially in the extremities, follow the pressure of the fingers upon the skin, which loses its carnation appearance, and becomes more or less coloured with the venous blood, which would seem to loiter in the capillaries. Pains are felt in the deep-seated bones, from the undue determination of blood to them, as remarked by Rush. The respiration is oppressed with frequent sighings ; from a similar cause a sense of fulness is felt in the abdomen. As the chill advances, nausea is induced ; frequently followed by vomitings or

* Stahl remarked that congestions give rise to pains. *Sprengel*, vol. 8.

retchings, which usher in the hot stage ; which may be considered as the result of a reaction in the internal capillaries, to relieve themselves from the accumulation of blood upon them. This struggle between the two antagonizing systems of capillaries is made through the circulating vessels, and produces the disordered action observable in the pulse. Sometimes, from want of power in the internal capillaries, the reaction is not adequate to the restoration of heat to the surface ; and then, the disease in many cases speedily terminates fatally. In these cases, upon examination *post mortem*, great accumulations of blood internally are observed. Here, there is great restlessness and great complaint of internal heat. Such subjects after death, decompose very rapidly, owing to the accumulation of heat attendant upon the blood, internally. At other times, the external capillaries yield more rapidly, and the paroxysm terminates in perspiration. In some instances, the external capillaries yield so far to the reaction, as to become the passive conductors of the serous part of the blood, which then passes off profusely through the pores. This perspiration is profuse and clammy, and always unfavourable. In almost every case of fever, that terminates unfavourably, there is this character of perspiration at some stage. Here the surface is cool, if not cold ; and the evaporation of the perspira-

tion subtracts further from the heat of the system, already below the healthy standard. Occasionally, there appears to be a fixed resistance in the external capillaries, and a protracted reaction in the internal. In such, the skin is constantly hard, dry, rough, and very usually yellow, with occasional petechial. The adnata of the eye is yellowish and watery, with its internal vessels deeply injected with blood. The remissions are imperfect, and frequently in the course of the disease disappear. The stomach is usually but little affected with nausea. The bowels are disposed to costiveness ; the urine is straw coloured. There is occasional slight delirium. The sleep is disturbed. The fever becomes chronic. The pulse is quick and frequent, with some degree of hardness. The teeth are covered with a dark sordes. The patient's flesh gradually wastes away. The pulsations in the abdominal aorta are observed through the covering of the patient, who is now very peevish and irritable. His appetite and thirst become pretty constant, and he dies at the termination of from fifteen to thirty days, usually comatose, and in a state of extreme emaciation. Previous to his death, there is a great disposition in the skin to the production of sores, upon which thick scabs form. I have never had an opportunity of examination after death, from such fevers ; but I have but little doubt, that the

morbid appearances are substantially the same, as in other cases of death from our fevers.*

I should have remarked before, that occasionally there is a suppression of the urine in some cases; in others, a mixture of blood and urine; and occasionally, with very little or no urine, there are frequent discharges of almost pure blood from the bladder. The suppression of urine I have supposed attributable to a condition of the kidneys, similar to that of the liver, when in fevers there is a suppression of bilious secretion; namely, an engorgement of blood, overpowering the capillaries. Sometimes this engorgement is partially relieved by the discharge of blood, with or without urine, following a passive condition of the capillaries. Under a similar condition, and when there is a suppression of bilious secretion, there is frequently a discharge of heavy matter, assuming more or less the character of gross, bilious, or earthy powder, and bearing some resemblance to sand. In such cases, the kidneys seem to perform partially, the secretory function of the liver. This excretion of gross bilious and earthy matter has been confined within my observation to the latter

* Upon seeing this remark in MS. Dr. Sereven informed me, that he had examined the body of a patient, who exhibited the above train of symptoms, and that the *post mortem* appearances were similar to those which are seen in persons who have died under the ordinary circumstances of autumnal fever

stages of the fever, and the first of convalescence ; and may be deemed, rather the effect of great debility of the kidneys, produced by their previous engorgement, than an indication of active disease.

There is occasionally an enlargement of the parotid glands attendant upon fever: I have never known recovery to follow such enlargement ; and where it has taken place within my observation, delirium and a long-continued coma have preceded death. This enlargement of the parotid gland, has frequently been mistaken, and attributed to a mercurial influence ; thence, exciting deceptive hopes in the practitioner, who mistakes its cause.

Physicians have not so frequently made mention of this symptom, since the general introduction of mercury in the treatment of yellow fever.

I am indebted to Dr. Chalmers' valuable book, entitled "*An Account of the Weather and Diseases of South Carolina*," published about fifty years ago, for many remarks, corroborative in a considerable measure, of my opinions of the nature of our fevers, as already expressed. I succeeded in obtaining a copy of this rare and valuable work from London, in the winter of 1821 and '22. I regret that my exertions to obtain another treatise by this author, published previously, on the fevers of Charleston, have proved unsuccessful. From the mass of valuable matter embodied in

a small compass, in the work I have, I cannot but believe I should derive much instruction from the other; and also have been made acquainted more fully, with his opinions of the nature of our autumnal fevers.

Great diversity of opinion exists, as to the manner in which *black vomit* is produced. From my own observation, I cannot believe it to be either vitiated bile, or arterial blood. The only conclusion to which I have satisfactorily arrived, is, that the nature and manner of its production, are yet to be explained. After a free discharge of black vomit, there is less tension and distress over the liver, and in the abdomen generally, and a singular tranquillity of system and mind. The matter of the black vomit is discharged with as much ease, and in a manner very similar to that by which a dispeptic, or a woman far advanced in pregnancy, *spits up* offending matter from the stomach.

It is very certain, that a matter is frequently discharged at stool, essentially the same with the matter of black vomit. The matter of black vomit has been supposed to proceed from the liver direct, or gall bladder. The contents of the latter, are certainly peculiar, and approach nearer to the consistence and appearance of tar, than any thing else; though there is present, a slight yellow cast, which is most observable, when a small portion is rubbed upon a glass. Dr. Scre-

ven has seen this matter in the stool of a patient ill of fever ;—he recovered.

It has been suggested, that the yellow fever is confined to salt water situations. The medical history of this city, New-Orleans, Natches, and other places, fully disproves this. There is as little correctness in the remark, that this disease appears only in cities.

Some of as rapid and malignant cases of autumnal fever, as I have ever known, have appeared in the coldest weather of our winters : such, within my observation, have been confined to feeble and delicate women. The occurrence of cold weather, during the progress of a case of yellow fever, usually renders it more protracted and irregular, and endues it with an inflammatory disposition.

Repelled eruptions aggravate fever ; upon the reproduction of which, there is an evident improvement in the patient. I have known an erythema of the skin, connected with gastric derangement, suspend autumnal fever for several days, upon the removal of which, the fever has recurred.

In remarking upon the supposed loss of balance in the blood, as caused by our fevers, let me not be understood as attributing an agency to the blood itself in their production. That, I have considered as a passive agent under the control and distinction of the vascular, and espe-

cially the capillary system. *It is in the disordered condition, and irregular and morbid action of the vascular system, that I suppose fever to exist.* Perhaps I have spoken of the effect, when I should have confined myself to the cause: my object has certainly been perspicuity; how far I have succeeded I know not. I certainly would not place myself among those who attribute the presence or absence of disease, to the condition of the fluids, any more than I would exclude them from a due and proportionate importance to the system. Whilst the schools continue to be divided, between the Solidists and the Humoralists, the practical physician will continue to know, that the fluids and the solids compose but an unit; and that each is equally essential to the other.

I cannot deny myself the pleasure of transcribing from the Thesis of my late pupil, Dr. Paul H. Wilkins, upon yellow fever, the following very ingenious remarks. I regret that his diffidence prevented the publication of it; for it is among the few productions of that class which should be known and remembered.

“Pathology reveals to us three sets of vessels morbidly affected in fever, viz. the arteries, the veins, and the capillaries. Of these, the two first are mutually dependent; the last, have somewhat of an independent action; they are all,

however, governed by the same laws, and influenced by the same causes; but in different degrees, according to their power of action, or the irritability with which they are endowed. We therefore find that though all are affected, they still suffer in different degrees. As an instance, let us take the cold stage of intermittent fever: here we find the capillaries completely inactive, the veins sluggish, and the arteries less affected than all; just in the same manner is it, in the disease of which I am treating. Assigning miasmata as the cause of this derangement, let us investigate its effects. If we view its first impression on the system, from the simple intermittent to this most aggravated form of fever, we will find that it exerts such a powerfully sedative influence as to produce a paralysis (if I may so term it) of the blood vessels; robbing them of their power of action, and suffering that state of congestion to ensue which exists in this disease. All the symptoms indicate this. What causes that languor and debility which usher in this disease? What causes that sluggishness and inactivity in the capillaries, and the consequent cold and relaxed skin, which are so remarkable? What causes that particular state of the stomach, which *post mortem* examinations reveal? The answer to all these is plain. ‘Ventriculo languido, omnia languent.’ The concentrated powers of miasmata invading the system

in its most sensible part, by nervous influence, paralyze the blood vessels. The *vis medicatrix naturæ* of Cullen, or some inexplicable cause, endeavours to arouse the system by exciting vascular action; but stunned as it were, by the violent attack, only one set of the vessels (the arteries) recover their action, and these only in a degree. The veins and capillaries, therefore, become receptacles for blood; and that state of engorgement ensues, which I have noticed; and which, according to the laws of the animal economy, attacks those parts with the greatest force where the cause first acted. A loss of balance is therefore produced in vascular action, the system sinks under the depression, and the whole train of symptoms ensue."

IS AUTUMNAL FEVER INFLAMMATORY ?

IF the preceding observations are not wholly without foundation, it is evident that our autumnal fevers have not an inflammatory character, and that, in truth, they are diseases of debilitated action. The loss of the system by the almost constant and free perspirations, during hot weather, is certainly calculated to induce debility. During that season, there is usually a thinning of the body, a sense of debility and lassitude, and a sluggishness of motion. There is also great difficulty in producing inflammations; hence the tendency to tetanus. The tongue of a fever patient is tremulous and unsteady, when thrust through the lips; it is also thickened and shortened. Sometimes the tenderness produced by pressure over the stomach, the soreness upon the patient's turning himself in bed, &c. do not supervene until after the heat, &c. have subsided below the grade of health.

In all inflammatory diseases, the heat of no part of the system is below the healthy grade; and frequently, in every portion, it is above it.

Pain, it is believed, is always an attendant upon inflammation. Relapses rarely follow diseases of inflammation, except from very obvious improprieties. Clammy cold profuse perspirations, are not attendant upon inflammatory diseases, though they frequently accompany their unfavourable consequences, when there is an obvious debility of system ; as in the existence of large abscesses, or mortifications ; and as the system overcomes these embarrassments, such perspirations subside.

Passive hemorrhages from the gums, fauces, nose, &c. do not attend diseases of inflammatory character. Convalescence from diseases of inflammatory character, terminating without organic injury, is not protracted. Extreme debility and loss of strength are not attendants upon all the stages of inflammatory diseases. If these positions be correct, the inference is plain, that our fevers are not of an inflammatory character. Opposed, as I am, upon this point, by an overwhelming majority of medical gentlemen, it is proper that I should examine the grounds upon which they found their judgment. Laying aside speculative points, the inflammatory character of autumnal fever, is inferred from 1st, The indications of the pulse and blood ; 2d, The success of the depleting system ; and 3d, *Post mortem* appearances.

Since the fatal experiments of 1820, no phy-

sician of this place would have the temerity to bleed in our fevers.*

The evanescent reputed indications of vigour, by the pulse, which obtain chiefly in the strong and robust, unused to our climate, in whom this disease soonest runs into a state of collapse, and is therefore an unfavourable attendant upon fever, are more than counterbalanced by other and less equivocal symptoms.

It has been frequently urged, that our fevers are at first inflammatory, but that they soon run to a state of debility, and that bleeding is to be limited to the first stage. It need only be replied to this paradox, that as the stage of debility is the only one attended by danger, the influence of which is chiefly to be resisted, it cannot be judicious to precipitate that condition, by reducing the tone of the system, and adding to the consequent debility. It is by such a doctrine only, that physicians can appear to reconcile the discordant character of their principles; and

* De la Roche and Gregory draw a distinction between the rapidity and intensity of the vital action. The first increasing in proportion to the reduction of the second. The one is excited by stimulants, and the other by tonics. In the consideration of our autumnal fevers the importance of this distinction has been much overlooked. The pulse of a patient in one of them, is neither full, firm, nor frequent. It has no one characteristic of inflammatory action. It is frequently soft and inelastic, always yielding under pressure. The pulsations frequently seem to run into each other, from the feebleness of contractile power in the vessels. The pulsations of the different parts of the body are not in accordance. *Vide Sprengel*, vol. 5.

certainly the theory and the practice wonderfully sustain each other. The classification of the pulse by Dr. Rush, certainly has not added to our knowledge of it. That he was as well acquainted with it, as any physician of his or any other age, I have no doubt ; but he certainly was not successful, in conveying by language, the impressions communicated to his sense of touch. It has been remarked, that blood drawn from persons under autumnal fever, exhibits evidence of inflammatory character. I have never seen such. No one will deny, that blood drawn from a patient does frequently, according to our imperfect notions on the subject, indicate a condition of the system, very different from what other and more satisfactory manifestations, would authorize us to admit. In some obviously atonic conditions of the system, blood drawn is considered to indicate a state of active inflammation. Frequently, the appearances of the blood, do not admonish us of the extent of the inflammatory action present in the system, from whence it had been drawn. Whatever may be the real character of the blood let, from a few cases of fever, it is certain, that in a vast majority, it is very far from giving evidence of inflammation. The physician, who, disregarding other circumstances, relies upon the manifestations of the pulse, or the condition of the blood, to indicate the remedies in the treatment of our

fevers, will have reason for regret, and leisure for repentance.

In regard to the second ground,—The success of the depleting system, urged in proof of the inflammatory character of our fevers,—it need only to be remarked, that it will be difficult to find an experienced physician in the southern states, with so little regard to his own reputation, as to claim any thing like success, in the treatment of severe cases of fever, by the depleting system; and it is to be lamented, that whilst they are journalizing their own errors, and detailing the fallacies of their own doctrines, some of them should not have been impressed with some charity for the practice and views of others, not in accordance with their own. All the physicians, whose doctrines I am now examining, feel themselves authorized to (and do) administer, the most potent stimulants, after the collapse or prostration of a patient, labouring under autumnal fever. Can this be compatible with their views? If stimulants are proper in the prostration, for the purpose of reinstating the powers of the system, may they not be proper to prevent their overthrow? Can it be seriously contended, that at one time, a disease is positively inflammatory requiring depleting medicines, and that in one hour after, it is one of extreme debility, requiring the strongest excitants? Such is the dilemma in which physicians daily

place themselves. With the present physicians, must terminate the doctrine of inflammation in our autumnal fevers. The success of the treatment which it inculcates, cannot recommend it to their successors, who will have but few scholastic prejudices in its favour, and their whole observation against it. It could not have been perpetuated to this day, but for the amalgamation of the mercurial with the depleting systems of treatment. Of the former, I shall speak more fully hereafter; and shall barely remark now, that since the introduction of the sulphate of quinine, mercury seems to have lost much of its reputed specific virtue in our fevers. But above all, the appearances after death, from yellow fever, have been triumphantly cited, as unequivocal and undeniable evidence, of the inflammatory character of that disease.

To me, these have afforded the most positive assurances, not merely of the absence of inflammation, but of the existence of a condition of the system, the very reverse of inflammatory. In what consist these appearances? Accumulations of blood in the brain, lungs, liver, spleen, and kidneys, and in the capillary veins of the villous coat of the alimentary canal, and especially of the stomach; in the capillary veins of the mucous membranes of the bronchia, and its ramifications; in the bladder, pelvis of the kidneys, &c. Upon engorgements of the liver,

spleen, &c. I have already sufficiently remarked. It is to the appearances of the villous coat of the alimentary canal, that the advocates for an inflammatory condition of our fevers, have especially called attention. Numerous, and minute examinations, have fully convinced me, that the appearances in the bronchia and its ramifications, bladder, and pelvis of the kidneys, are precisely of the same character with those of the alimentary canal ; and the observations which I make on the latter, must be considered as applying equally to all the mucous surfaces. For, if one be the seat of inflammation in our fevers, most assuredly all are. These appearances, be their nature what they may, are common to all our autumnal fevers, so far as we can depend, for testimony, upon such as terminate fatally. It is, however, certain, that they are much more extensive, where the disease is most violent and terminates most speedily.

Upon opening the stomach of a person, recently dead of autumnal fever, the internal surface presents a dull red appearance in one or more points. Upon exposure, for a short time, this dull red becomes more florid, and undergoes a similar change with that produced by exposing venous blood to the atmosphere. My attention was first called to this fact, and its inference, by *Dr Jas. P. Screven*, of this place ; to whose intelligence and judgment, I have been repeatedly indebted for valuable suggestions, and pro-

found opinions, whilst in the prosecution of these inquiries. Examined more attentively, this red appearance is found to be the effect of numerous points of red, distinct and wholly independent of each other, thickly grouped together. This is more obvious, where the villous coat is detached from the others, and held between the eye and the sun. In other parts of the stomach, these points of red are frequently found sparsely spread. The small veins running between the villous and adjoining coats are found filled with blood, and the capillaries into which they ramify in the villous coat, are found very partially injected with blood. To the naked eye, when the villous coat is detached, and interposed between this organ and the sun, it is obvious that these small red spots are produced by particles of red blood detained in minute capillary veins, which are distinctly seen, and may be traced to the larger trunks, into which they enter. If a portion of the villous coat be separated from the nervous, with a knife, and rolled up, and further portions detached by winding it upon itself, and then spread out, the red appearance which it had previously exhibited, will have disappeared, and small portions of the blood will be found on the side which had been next the nervous coat. The rolling of this coat upon itself, in the process of detaching it from the other, had pressed the blood from the capillary veins. This fact

suggested to me the idea of removing the red appearance by gentle and regular pressure of the finger; which was readily effected. Indeed, so easily are these specks destroyed, that care is necessary in detaching the villous coat, lest they be impaired or entirely obliterated; in which latter event, there will be no appearance of red remaining in the villous membrane. These appearances, as before remarked, are always found in the stomach of those dead of our fevers; frequently, in the intestines; most commonly, the duodenum; next, in the small, and occasionally, in the large intestines. They are also found in all the other mucous membranes. Dr. Screven's observation assures him, that the red appearances in the bladder are most extensive in cases where bloody urine has been passed. I have never been able to discover them in any of the serous membranes.

I have taken great pains in these examinations, to ascertain fully the condition of the capillary arteries; and am fully satisfied, that they are constantly empty, and that the red appearance solely depends upon the blood in the capillary veins. In this, Dr. Screven fully concurs with me. The late Dr. Kollock, in whom were united in an eminent degree, the gentleman, the scholar, and the philanthropist, who had, from his observations in 1820, been confirmed in his impressions of the inflammatory affections of the

stomach in yellow fever, with a frankness almost peculiar to him, acknowledged his error, after examining with me, in 1822, several stomachs of persons dead from yellow fever. He informed me, that the appearances of the stomach, exhibited to him, were similar to those of 1820. This was corroborated by the observation of Dr. Dashiell, now of Cincinnati, who witnessed the examination of the stomachs of some subjects, who had died of yellow fever, in 1821. He perceived no difference between the *post mortem* appearances of such in 1820 and 1821. It was my misfortune to be deprived of opportunities of examining subjects of yellow fever this year, by an early visitation of that disease upon myself.

Much has been said by writers, of mortifications, erosions, ulcerations, &c. of the stomach, in cases of yellow fever. I have searched for them most sedulously, but without success. I cannot readily believe, that under any circumstances, these could occur during the life of a person; for the violence which would produce either, would, I imagine, immediately extinguish vitality. I am by no means, disposed to assail the integrity of such as have reported these appearances. They have been deceived in a manner very readily explained, and in all respects similar to their deceptions concerning the existence of inflammation in the stomach and intes-

tines, in the same disease. Moreover, it was but another step for a physician, who supposed he had seen the inflammation, to believe in the existence of ulcerations and mortifications in the same parts. I have, in many instances, seen the appearances in the stomach and intestines which have been reported to be ulcerations and mortifications. The first, is a partially coagulated mucus, adhering with considerable tenacity to the villous coat, exhibiting a rough and granulated surface. When this mucus is removed with a scalpel, the surface of the stomach under it is found entire. At other times, a portion of the surface of the stomach is quite black. This varies in size, from a small spot, to one several inches in circumference ; and may, by the eye, be readily mistaken for mortification. Upon examination, however, this black colour will be found limited to the surface of the villous coat, and the extent which it embraces, will be found to be as firm, and possess as much tenacity as any other part ; and indeed, I have frequently, in endeavouring to tear it, found other portions give away first. Occasionally, small black points, about the size of a pin's point, are found seated in the villous coat. These I have frequently picked out with a scalpel or probe's point ; they cannot be washed off. To what these black appearances are attributable, I know not ; but certainly, they do

not, in the slightest degree, partake of the nature of mortification.

Then, the only authority for claiming the presence of inflammation, in the alimentary canal of persons ill of yellow fever, is to be found in the existence of globules of blood in the extreme capillary veins of the villous coat, after death. As soon should the petechiæ of the skin in the same and other diseases, be referred to, to prove the existence of inflammation in that organ. They are both manifestly of the same nature, and both prove the existence of debility. If inflammation exists in the alimentary canal of persons labouring under yellow fever, it is equally present in the bladder, kidneys, and the bronchia and its ramifications. The appearances (already described) in these various parts, depend upon the same causes with hemorrhages in fever; from the fauces, mouth, nose, bladder, and other parts, namely, debility; and it would be full as just to contend, that these are the result of inflammatory action. The red and fiery appearance of the eye, as frequently manifested in our fevers, has also been cited as evidence of their inflammatory character. Removed, as the organ of vision is, (and for the wisest purposes) from the immediate influence of the heart, it cannot be imagined that an inflammatory fever, would readily manifest itself there; and it is a well established fact, that the eye does not

usually participate in the effects of such diseases. This appearance of the eye, I would attribute to the atonic condition of the capillary system, in our fevers. The circuitous course, by which the blood reaches this delicate organ, as well as the minuteness of its arteries, diminish very much the force with which its circulation is maintained; and consequently, render it most sensible to an impaired vascular action. Inflammation of this organ, for a similar reason, is with great difficulty overcome, by general depletion; and when severe, local bleeding is frequently absolutely necessary, to the saving of vision. This red fiery appearance of the eye, as well as the yellow cast, which it occasionally assumes in our fevers, (both being dependent upon the same causes,) are speedily removed, by causing an inflammation of the skin, by the application of sinapisms, and the free administration of tonics. I have, in a few instances, known death to supervene in thirty-six hours from the beginning of yellow fever, during the whole of which time, the heat of the system has been constantly below the standard of health. Is it possible that there could be inflammation in such cases?

In our fevers, the most plethoric sink soonest under evacuations. In inflammatory diseases they require usually most.

If our autumnal fevers were inflammatory; detriment would be derived to the system, from

any measures increasing its heat, and giving a continued type to them. From the practice pursued by me, (hereafter to be detailed) it will be seen, that constant success has attended the conversion of our remittent fevers into continued ones; and the elevation of temperature subsequent upon such conversion.

To me, it has appeared, that the tendency of our fevers from their very first access, is to a state of collapse, not from indirect, but direct debility. If this tendency is resisted in the onset, we contend merely with the causes of debility in operation. If we wait until the collapse, and accelerate that by the use of evacuating medicines, we have afterwards to contend against these causes in their maturity, and with their effects greatly multiplied. That which is calculated to remove in conclusion, should certainly arrest an evil in its progress. This reasoning is not always applicable to chronic diseases, where there are frequently several distinct and sometimes dissimilar stages. The *post mortem* appearances heretofore detailed, I believe, are the production of the latter stages of the fever; and probably, after the collapse.

The *petechiæ* usually make their appearance when the action of the arterial system has been evidently reduced; and but rarely appear on the neck, in the axillæ, groins, or between the thighs, where the arteries terminate more

speedily in the veins, and at shorter distances from their larger trunks. The terminations favourable or unfavourable, of our fevers, certainly bear little if any resemblance, to the terminations of inflammatory diseases. In fine, there is not one unequivocal evidence of inflammation, in any one stage of autumnal fever. It is a disease commencing in debility ; throughout its progress, displaying evidences the most positive of debility, and terminating by the direct extinction of vitality.

I have frequently been struck with a great similarity of general expression (if I may so speak) between persons in the advanced stages of yellow fever, and those who have suffered from lightning, without perishing. The resemblance may be imaginary.

For more than thirty years, the yellow fever has attracted more attention and called forth more remark, than probably almost any other disease ; and certainly, it is the only one in the treatment of which, some improvement has not been made within that time. The visions of the few, became the realities of many. The speculations of teachers are problems to their followers ; and one pretty conceit frequently overturns the observations of a whole life.

For thirty years has yellow fever been treated as an inflammatory disease, and now it is pro-

nounced incurable ! Those who fail, seem never to ask “is the disease inflammatory ?”

Since writing the foregoing, I have received the May No. of the Philadelphia Journal of Medical and Physical Science, which contains an account of some dissections of persons who died of yellow fever in New-Orleans, in 1817-18-19, by my early friend and fellow-student, the late Dr. Lawrence, of Philadelphia. To those who enjoyed his acquaintance, it is unnecessary to remark, that he was not more distinguished for unwearied diligence and dispassionate investigation, than for accuracy of observation and strict integrity.

Opposed as I am by his observations, I cannot but feel the full force which his opinions will have against me. Whilst we differ, as to the real nature of the affection of the stomach and intestines in yellow fever, I am gratified to find that the observations of Dr. Lawrence confirm my own experience as stated in the Philadelphia Journal for August, 1823 ; that the red appearance is confined to the villous coat of the alimentary canal ; and I feel no hesitation in saying, that if he had examined that coat in the same manner with myself, he would have, as must every one, come to the same conclusion that I have ; namely, that *the red appearance of it arises from venous blood in the capillary veins, or, in other words, that it is congestion and not inflammation.*

Dr. Lawrence is induced to infer, from one of his dissections, that the matter of black vomit is composed in part of the villous coat. I can have no doubt but the appearance which the villous coat exhibited in this instance, was the result of partial decomposition ; for the subject in which it was observed was examined the "next morning after his decease." I have already spoken of the rapid decomposition which follows death from yellow fever ; and have attempted to explain the cause of it. And with a view to avoid confounding the effects of this early decomposition, with the appearances produced by the fever, I have invariably made my examinations within a short period after death ; and frequently when the body was yet warm. Dr. Lawrence further confirms my observations, as to the existence of dark bluish or dark leaden coloured spots, occasionally in the stomach, which it is evident he does not consider as connected with mortification.

UPON SALIVATION IN AUTUMNAL FEVERS.

THE establishment of a fact connected with a controverted doctrine, is frequently in medicine, at least as difficult as the discovery of the truth of the theory itself : so subservient are our senses to our opinions. To this is attributable the difference of opinion that still exists in relation to the curative power of mercury, in the treatment of our autumnal fevers. Whilst the American and British physicians claim for this medicine a controlling influence, those of the European continent as generally deny its virtue in these diseases. This diversity of opinion is attributable mainly, if not exclusively, to the difference which exists in the pathological views of the two parties concerning these fevers. Believing, as the American and British medical public generally do, that the hepatic system is mainly involved in the fevers of warm climates, it almost follows of course, that they should deem mercury a powerful agent in their cure. The physicians of the continent, who deny such an agency to the biliary system, cannot admit the reputed importance of the mer-

curial treatment. I have but little doubt, that the reputation of mercury in the treatment of our autumnal fevers fifty years hence, could be predicted, if it could now be decided whether they would at that period be considered of a bilious character ; for I cannot believe, that the success which has attended the mercurial treatment would ever have of itself maintained its reputation.

Few, it is believed, will now claim with Rush, that salivation is serviceable in yellow fever, only from its evacuant effect. The more general explanation (independent of its supposed action upon the liver) of its *modus operandi*, is founded upon a remark of the celebrated J. Hunter, that no two actions can exist at the same time in the same system, and that the lesser will yield to the greater. In this, as in many other cases, reference is made to a known fact, to establish and illustrate a doubtful hypothesis. That mercury, when given as an alterative, frequently increases the excitement of the system, there can be no doubt ; but it is equally true, that as soon as it seizes fully upon the salivary glands, it produces a local excitement and a general debility of the system. There are few local affections, that produce greater constitutional debility, than a profuse salivation. It is, however, yet more erroneous to suppose, that the mercurial action is superior to, or can control, the febrile. It is

remarked by Rush (and who has not witnessed the same?) that salivations which exist during the intermissions of a fever, are sometimes wholly suppressed by the paroxysm. If fever has the power to suppress mercurial action, it certainly has the power of preventing it. I have witnessed a few cases, where a salivation supervening in the early stage of a fever, has, without in any way mitigating the disease, or shortening its duration, run on with it for many days much to the distress of the patient and annoyance of the physician. I have further known fever to supervene in persons labouring under salivation, produced in the treatment of chronic diseases, where the ptyalism had subsided upon the supervention of fever, and returned upon its termination without the intermediate administration of a single grain of mercury; as the following case will show.

A man who had passed a considerable portion of the preceding eighteen months in the hospital, with an extensive ulcer of the groin, was admitted in the fall of 1822, with the same affection. It had been treated as syphilitic, and he had been several times salivated. A wash of lime water and calomel was directed by me, which in a very short time produced a profuse salivation. In a few days after, he was attacked with remittent fever, upon the supervention of which the symptoms of salivation wholly dis-

appeared. The fever terminated in nine or ten days, upon which the salivation returned in full force with mercurial fætor, swelled salivary glands and tongue, inflamed gums, and furred tongue. Not one grain of mercury was administered to this patient after the supervention of fever ; nor was there, at that time, another case of salivation in any of the wards. In most instances, however, the system, whilst under the influence of fever, refuses to take on a mercurial action. Nothing is more common than for salivation to succeed a fever, where mercury has been administered in its progress. There should be as little surprise felt at the superinduction of mercurial action upon the termination of fever, as there is at the refusal of the system to take on that action during the existence of a fever, that paralyzes its functions, and impairs its susceptibilities. Occasionally, salivation does precede the termination of fever, although its severity has been previously much mitigated. The presence of salivation here, however, is certainly an evil superadded to the disease ; for, the supervention of the former has been the consequence of the mildness or improvement of the latter, and is wholly unnecessary to the cure. The advocates for the controlling influence of mercury in autumnal fevers, claim that where salivation follows the declension or termination of such disease, that declension or termination

was the effect of what they please to term (how intelligibly others may decide) "the silent influence of mercury upon the system." The silent influence of this medicine is, I believe, however, more fully recorded in our bills of mortality, than any where else. One of the five apothecaries in this place, in 1820, informed me, that he retailed to the physicians of the city, during that season, about thirty pounds of calomel. Where mercurial action is superinduced upon a fever, which in my observation is of rare occurrence, it certainly adds to the debility of the system; and neither prevents nor mitigates, but I am satisfied, frequently gives a direct tendency to other unfavourable symptoms. I have several times known prostration to follow, which I believed was produced by salivation: and, I believe, I have in some instances, prevented such prostration, by a speedy suppression of salivation, with the free use of ice applied locally, both upon the face and in the mouth. This practice I know has been much reprobated. Although it has occasionally not succeeded with me, I have never known any injury result from this treatment; and though the action of mercury upon the system, may be peculiar, I believe that action is suspended as soon as salivation is fully induced; and the affection becomes local, and should be treated as such.

When prostration follows salivation, the mercurial affection subsides suddenly; evidently from the want of vascular action to support it; and as the action of the system returns, so does the salivation. I believe, that in all cases, the mercurial fœtor increased salivary secretion, swelling of the parotid and submaxillary glands and tongue:—in fine, all the symptoms of a profuse salivation where they exist, wholly subside several hours before death. This, I certainly have frequently witnessed; and have never known an exception, since my attention has been called to it. This remark is designed to embrace other diseases, treated with mercury producing salivation, as well as fever.

It is much more usual, however, for salivation to follow a day or two after the termination of fever; which I deem rather a new evil, arising to obscure a favourable issue of the disease, than any thing else. I have very frequently known salivations to occur in this manner, four or five days after the abandonment of mercury in despair; when the patient has been allowed to float along under the efforts of nature, the physician silently awaiting a result which it was acknowledged he could not control. Such was my own case in 1820. For five days after the abandonment of mercury by my attentive and kind physicians, and the second after the termination of my fever, a violent salivation super-

vened ; the annoyance of which, no one can understand, who has not experienced it. Such salivations increase very much the atonic condition of the digestive organs.

The loss of his saliva, cannot be atoned for to the convalescent. Salivation certainly protracts very much recovery from our fevers ; for it is very rare, that a person who has suffered seriously, and has been subjected to the mercurial treatment, should he be so fortunate as to survive both the disease and the remedy, is restored to any thing like tolerable health before the ensuing summer. The tedious recovery is, I know, attributed to frequent relapses, which I would impute to the atonic condition of the system, and especially of the digestive organs and liver ; and to the debilitating effects of the salivation. Certainly, other patients, who have been so fortunate as to escape the horrors of ptyalism, have usually (other circumstances being equal) convalesced much more rapidly.

Occasionally, without any previous indications of its approach, coma suddenly seizes upon persons in deep salivation. In such, within my observation, death has invariably followed ; and I have been strongly induced to suspect, that the salivation was the chief, if not sole agent, in producing the coma.

The late Dr. Cutter, who fell a victim to our

fever in 1820, informed me a short time previous to his death, that he witnessed the presence of salivation and black vomit in the same patient, at the same time, that season; and that the former preceded the latter, by more than thirty-six hours. The patient died.

There is, perhaps, no medicine which has been used so vaguely, and inconsiderately, as mercury, by well-educated physicians. It is given indiscriminately, in all affections of the liver, in the acute and chronic inflammations, and in enlargements of this organ:—In the suppression of bilious secretion, as well as where there is a redundancy of it. Nor is the empirical administration of this medicine confined to affections of the hepatic system; in all of which, it is well nigh considered a specific. It is the last resource of the modern physician; and wherever he finds other medicines unavailing, he seeks relief in a salivation. In diseases of debility, he gives mercury, as a stimulant:—in those of imagined excitement, he gives it to produce a new action.

I have already alluded to the great quantities of mercury, which were administered in the fever of 1820, in this place. Although, it is believed no physician claimed to have saved a single individual from death, that season, by the production of salivation, it was administered the following season with equal freedom, and

apparent confidence by most of them in the same disease. I am gratified, however, to say, that since 1822, the mercurial treatment has gradually yielded to my own; which latter, although still condemned, has been to a considerable extent, adopted generally. *Sinapisms*, *Bark*, and *Serpentaria*, which, in 1821, were treated with little deference, are now daily in the hands of all our physicians, when treating autumnal fevers. And whilst my fellow-beings are daily rescued from death by their agency, I am content to be denounced by some of those who have learned their value from me. He is indeed unacquainted with human nature, who expects to receive justice at the hands of those whose worst passions he has excited by successfully combating with and exposing their inveterate errors.

METHOD OF TREATMENT.

PREVIOUSLY to detailing the treatment that I have adopted, in our autumnal fevers, it is proper that I should submit some remarks upon the remedies on which I rely.

1st. *Sinapisms*. These have heretofore been used for their rubefacient virtue. I have resorted to them, to inflame the skin. Used as rubefacients, they are certainly in some measure revulsive; here, their influence is usually as evanescent as the discoloration which they produce. Where the skin is inflamed, and that inflammation continued, the revulsive or derivative power of the *sinapism* is permanent, and consequently perpetuates the good which it at first achieved. Heretofore, the sinapism has been chiefly resorted to in moments of emergency, for a temporary benefit. Hereafter, it will be considered as one of the most efficient means of arresting and controlling autumnal fevers; at least, such it has been in my hands. I refer the reader to No. 12 of Professor Chapman's Journal (August, 1823,) for a statement

of what I deem the advantages which *rubefaciants* (*sinapisms*) possess over vesicatories in the treatment of yellow fever.

Ordinarily, the plaster is prepared by me, by making the mustard into a paste, by the addition of hot water. Dr. Screven prefers cold water, which I have rarely used. Vinegar reduces the strength of the mustard, and flour impairs it. When it is desirable to give additional power to the sinapism, spirit terebinth. is substituted for water. The former preparation answers fully, save when there is great torpor in the skin, with or without profuse cold perspirations.

The first effect of the application of a sinapism, is rubefacient, merely; if longer continued, the skin is inflamed. This inflammation, I am now disposed to believe, does not extend beyond the *retimucosum*; which is chiefly constituted of a minute network of innumerable blood vessels and nerves, which, passing through the areolæ of the cutis vera, are expanded upon it. This vascular network composes the capillary system of the surface.*

* Je crois qu'on doit entendre par corps reticulaire, un lacs de vaisseaux extrêmement fins, et dont les troncs déjà très déliés, après avoir passé par les pores multipliés dont le corion est percé, viennent se ramifier à sa surface, et contiennent différentes espèces de fluides. L'existence de ce réseau vasculaire est mis hors de doute par les injections fines qui changeant entièrement la couleur de la peau au dehors, sans l'altérer beaucoup au dedans. C'est lui qui, comme je l'ai fait observer, est le siège principal des irruptions multipliées dont la plupart sont réellement étrangères au corion cutané. Bichat, Anatomie General, tom. ii. p. 665.

The inflammation thus produced, continues for an indefinite period; and may be perpetuated from time to time, by the reapplication of the sinapism, as exigencies should require. Where the fever terminates (as it frequently does,) gradually, and imperceptibly, and without any critical discharge, the inflammation as gradually subsides, and the old cuticle gives place to a new one. When, however, the fever terminates by a copious perspiration, although the inflammation may have existed for a week or more previously, it occasionally is resolved by the discharge of serum; forming vesicles similar to those produced by a blister. Sometimes, these vesicles are formed in a few hours after the removal of the sinapism, and during the continuance of the fever. This, I have found to be an unfavourable circumstance; and when it occurs, I am usually disappointed in the favourable influence upon the patient, which I had expected to derive from their inflaming the skin; because, I am defeated in my design, and this ready separation of the cuticle is itself evidence of great vital debility. In such instances, their operation and influence are similar to that of the blister; an inflammation which is revulsive in its influence, is produced in the skin; which is speedily resolved, by the effusion of serum forming the vesicle. The capillaries of the surface, which would have been invigorated by the continuance

of the inflammation, now have their imperfect action further impaired, by the atonic condition of those which have been immediately debilitated by the vesication. Blisters are revulsive, so long as they inflame the surface. In proportion to the exhaustion of the energies of the system, is this tendency to vesication from sinapisms. Dr. Screven observes, that where bleeding has been resorted to in fever, sinapisms are very apt to produce blisters. There is a similar tendency in persons habituated to free potations. Where the system does not react under the inflammation of the surface, vesications habitually precede dissolution.

Occasionally, where prostration has succeeded to the abrasion of the cuticle, following the application of sinapisms, or the formation of vesicles, consequent upon that application, a sufficient action takes place in the skin, and pus is secreted. This, I have always found a favourable circumstance; the new action appearing to fulfil the same end, in regard to the revulsion, and equalizing the circulation, which are derivable from the simple inflammation of the skin, without discharge. The sinapisms are habitually applied at the same time, to the abdomen, fore arms, and legs; and are made to occupy as much of the surfaces of these parts, as is convenient. The period which is required for them to inflame the skin, varies in each case. Oc-

asionally, thirty minutes is sufficient ; at times, almost as many hours are required. When there is much dryness and heat in the skin, it becomes necessary to moisten the sinapism from time to time, or apply fresh ones. When applied during the exacerbation of fever, or when the heat of the surface is above the healthy grade (and occasionally, at other times) so soon as they fully produce inflammation upon the skin, there follow almost invariably, free evacuations from either the bowels, kidneys, or skin, and always to the decided advantage of the patient. In such cases, the volume of the blood is so much reduced, by the amount of the evacuations, as to relieve the internal capillaries of much of their burthen ; by which, they are enabled to act more vigorously in restoring an equalized circulation. It is not necessary that the sinapisms should be kept on, until the skin is fully inflamed ; unless in cases of prostration ; for so soon as the inflammation is raised to a certain point, it will continue on and perpetuate itself. This point, which cannot be defined, will soon be ascertained with considerable accuracy, by an attentive physician. If the sinapism be removed too early, which will be known by the imperfection or recession of the discoloration, it should be immediately reapplied ; for, if delayed, it will afterwards become more difficult to produce inflammation on the same part. In cases of

prostration, and where there is much exhaustion of the system, or great debility, and tendency to cold perspirations, it is difficult, and indeed frequently impossible, to produce at first, a complete and full inflammation of the skin. In such cases, some respite from the sinapisms should be allowed to the patient, as soon as it is found, that some permanent discoloration of the skin is produced. Having obtained this footing upon the circulation, the sinapisms should be re-applied at intervals of six or twelve hours ; when they will be submitted to with less reluctance by the sick ; and the impression made upon the system by the medicines, will aid in perfecting the inflammation. In these cases, the reapplication of the sinapism, is frequently suggested to the patient, by a recurrence of some distressing sensations ; from which they had before relieved him ; as retchings, shortened respiration, great internal heat, &c. By the repeated application of the sinapism to the same part, the inflammation will be in a few days rendered complete ; by which time, frequently, the patient is relieved from all danger, and nothing more is required, than the continuance of the medicines for a short time, with proper nourishment ; as hereafter suggested. In cases of several days standing, and where there is much torpor in the skin, connected with a dry condition of it, upon the removal of the first sinapism, it will be remarked, that there is usually some elevation of the skin ;

which elevated portion has a yellowish cast, which is not removed, until the skin by succeeding applications of the sinapisms is fully inflamed; and even then, there is not that florid red which obtains in other inflamed surfaces. Around this elevated portion, and obviously connected with it, is sometimes remarked a narrow band of red, evidently arising from the sinapism, but which had not been covered by it.

The severe pain, and sense of burning, which add much to the revulsive power of the sinapism, remain some hours after its removal, and until inflammation has become full. In this, I have supposed, that the sinapism is preferable to nitric acid, or any other caustic application; which acts more speedily than the former. In one instance, I have known a patient reapply the plaster, to relieve himself from this sense of burning. He assured me from repeated experience, that this measure mitigated the pain. Was this the effect of the mechanical influence of the plasters upon the delicate capillary vessels? The use of a sinapism is frequently followed by a very keen appetite for food.

In addition to inflaming the skin of the abdomen, legs, and fore arms, it sometimes becomes necessary in the course of the treatment, to apply the sinapisms to the hypochondria, thighs, and arms. If there be much tendency to delirium, a decided advantage is frequently derived

from the application of a sinapism to the back of the neck, and between the shoulders. Here, I have sometimes found a blister more serviceable than the sinapism, for a reason that will be readily understood.

It is obvious, that the great advantages derivable from the use of sinapisms, are attributable to their revulsive power ; which equalizes the circulation, and aids the other means, in maintaining an equal distribution of blood. Hence, the comparative tranquillity of the blood vessels ; the composure and the refreshing sleep, which frequently follow their application ; hence, the relief from the distressing sensations of inward heat, the removal of pains in the head, loins, and bones ;—the removal of thirst, and dry parched appearance of the tongue ;—the removal of tenderness over the stomach and liver, of sense of fulness in the abdomen, of red fiery eyes, of immobility of the pupils,* of occasional deafness, of delirium ; and hence, the relief from a distressing anxiety of the stomach, heretofore so appalling a symptom in our fevers ; and hence,

* I have recently, in several cases of children ill of fever, attended with convulsions, remarked, that when asleep, upon my raising the eyelid, the pupil is found very much contracted, and yields very little to the influence of light ; upon waking in such, the pupil became very much dilated, and would not contract upon excluding the light by closing the eyelid. I have several times, upon the same patient, observed this. In one instance of a child roused from a deep sleep, I observed that as he fell asleep, and before the complete closing of the eyelids, the pupils suddenly fell from a widely dilated condition into one of almost complete contraction.

finally, the restoration of the natural sensations of the patient, together with the due exercise of the functions of the body.

The application of the sinapism to the abdomen, certainly exercises a much greater influence over the system, than when made to any other part. In the early stage of fever, it frequently subdues it at once. Dr. Screven has observed, that a sinapism applied to the loins, will fail to relieve pain in that part, when one placed over the stomach, will readily remove it. The application of a sinapism to the whole abdomen, made upon the supervention of the first, or even second paroxysm of fever, frequently arrests and removes the disease, as it also removes the precursors of fever. Critical evacuations frequently succeed to the successful applications of sinapisms, previous to prostration. Inflaming the skin with sinapisms, prevents the recurrence of chill or ague. Hence, their great importance in the treatment of obstinate intermittents. I have not in the last five years, had a single incurable case of this disease. The system once subjected to the influence of the inflamed surfaces, this is to be perpetuated by the reapplication of the sinapisms from time to time, to them, until they maintain a deep red appearance; after which, if sinapisms be again required, they should be placed on new surfaces; for, the inflammations already produced, have attained

their highest point, and consequently exercise already their greatest revulsive power.

When the inflamed surfaces assume a dark purple colour, an appearance as of venous blood, it is unfavourable.

Whether the pulse be full, rapid, irregular, and frequent ; or thin, feeble, and quick, the inflammation of the skin by sinapisms, improves its character, and approximates it more nearly to a healthy condition. Whether the heat of the system, generally, be above or below the grade of health, the successful application of sinapisms, restores it much more nearly to its ordinary standard. Whether the skin be hot, harsh, and dry ; or cold, shrivelled, and bedewed with clammy perspirations, the inflammations produced by sinapisms, very much improve its condition.

By their use, patients are frequently relieved from extreme prostrations, when the system can be influenced by no other remedy, with which we are acquainted. Here, the influence is more prompt and certain, if the patient has not been purged previously to the collapse.

The inflammations produced by sinapisms increase during the exacerbations of fever ; and appear in that way to shorten, mitigate, or control them.

The yellow cast in the skin and eyes, so frequently, though erroneously considered as the

effect of bilious matter absorbed into the circulation, is usually removed by the application of sinapisms. I am induced to think, that this appearance in the early stages of our fevers, differs essentially from that which supervenes in protracted cases, and after the disappearance of fevers, treated after the mercurial fashion. The latter, I have no doubt, is the effect of a disordered condition of the digestive organs and liver. The former depends upon the condition of the capillary system.

To a physician unaccustomed to the influence of sinapisms, in the treatment of our autumnal fevers, the remark will appear almost incredible, that they frequently in a few hours relieve a patient from the most distressing restlessness; and whilst yet on him produce sound and refreshing sleep: such is nevertheless the fact.

The application of the sinapism, at all times painful to the patient, is especially so in the last stage of prostration. I have seen persons, from whose wrists the pulsations had for some time subsided, suffer the most acute agony from them; and greater, I have supposed, than at any other period of the disease. In such the skin is not inflamed nor even discoloured. Patients are frequently induced to make applications of oil, cream, or cold water, to the inflamed surfaces, after the removal of the sinapism, to mitigate the pain and burning. This measurably de-

feats the design in their use, and should constantly be prohibited. It also frequently renders the reapplication of the sinapism necessary at a future time; when probably otherwise a recurrence to it would not have been necessary. Such applications sometimes produce vesications.

In the treatment of the fevers of children, sinapisms are frequently of great value, and especially when in the progress of the disease there is a tendency to collapse. Applied in the earlier stages, their influence is not so decided; nor is there any thing singular in the appearance of the inflamed surface. Applied, however, when there is an obvious tendency to prostration, but before it has actually supervened, sinapisms certainly achieve frequently, what can never be derived from vesicatories. In the skin, upon which they are at this stage applied, they frequently produce a red appearance, similar to that found upon minute examinations in the stomach of a person who has died of autumnal fever, as heretofore described. Following this, the limbs upon which they had been applied, swell, and present somewhat the appearance of œdema. Around the plastered portion, a yellowish cast is presented in a circle, some five lines in breadth, which is hot to the feel of the attendant, and exceedingly painful to the patient. At the same time, the whole of the plastered surface is becoming more and more

painful. This yellowish band encircling the plastered surface continues hot and painful from three to six days ; when, upon an obvious improvement in the condition of the patient, the inflammation is resolved by a copious secretion of yellow serum. About this time, the cuticle becomes detached from the whole plastered surface, and with that extending to the surrounding recently inflamed portion, forms a common vesicle by a discharge of serum from the lately inflamed border ; on the depending portion of which vesicle, the yellow serum rests. After this first, there is no following secretions of serum ; for I have suffered this vesicle to remain undisturbed, four or five days, during which there was no augmentation in its bulk. Sometimes a superficial ulceration, not extending below the *rete mucosum*, takes place ; at other times, the red points are only removed by sloughing ; but frequently, a new cuticle is reproduced without loss of substance. These red spots, originally seen in the plastered portion, remain, and are seen through the new cuticle for some time, and until the vigour of the system is greatly restored. When the *rete mucosum* does slough, the cuticle forms over it, leaving a slight depression, differing in appearance essentially, from a common cicatrix, upon which a cataplasma will not afterwards act. This cuticle is disposed to be lax and loose upon the skin ; and the ariolæ

in the *cutis vera* beneath, are distinctly seen through it. The œdema which arises soon after the application of the sinapism, usually subsides in two or three days; always before the solution of the inflammation. In these cases, I have supposed the inflammatory action in the band encircling the plastered portion, to be highly revulsive in its influence upon the system.

It should be added, that at this period of the disease in children, I give freely bark, serpentaria, and Cayenne pepper; and I have no doubt, but that mortification would follow such a condition of the skin produced by sinapisms, under a different system of treatment.

2d. *Capsicum Annuum*. I am as much at loss for a phrase* by which to mark the character of this medicine, as I am unable to find a proper class for it. It is so essentially different from every other article of the materia medica, as to be entitled to a place by itself. It certainly partakes of some of the qualities of both a stimulant and atonic; and yet, its prominent virtue differs from both. Its action upon the system is certainly as peculiar, as it is frequently important. To a system suffering under the debilitating influence of autumnal fever, the Cayenne pepper imparts an energy, a warmth, and a tone entirely peculiar to itself, without ever producing an

* Dr. Sereven calls it an aromatic tonic. It is that, and it is more.

undue or injurious excitement; if that may be so called, which approximates the debilitated and overpowered energies of the system nearer to a state of health, though still below it. Its pungency on the palate has certainly given to Cayenne pepper a character for harshness, wholly unmerited; and daily disproved in its extensive application to culinary purposes, and table use. In no part of my practice have I found so much difficulty in overcoming the prejudices of patients. I use this article in the form of infusion; say a table-spoonful of the powdered Cayenne to a pint of boiling water; of which, from a table-spoonful to a wine-glassful may be given every hour, (or *in extremis*; oftener,) according to circumstances. Patients frequently express the comfortable feelings, which this article produces upon the stomach; and especially, where great gastric distress had existed.

In his Therapeutics Professor Chapman observes, that Cayenne pepper has been used in the treatment of intermittents and yellow fevers. I have somewhere seen, in a general order from a surgeon-general to the British forces in the West Indies, directions to the surgeons to use this article in the cure of yellow fever. I understand, that Cayenne pepper was some years since used in Charleston in the form of pills, in the treatment of the same disease. Dr. Anthony, of Augusta, informs me, that he

has used this article with very decided advantage. Next to sinapisms, (in conjunction with which it is frequently directed) Cayenne pepper exercises the most powerful influence in calming the irritated stomach ; and in cases of extreme torpor of the skin, where all applications to it are inefficient, its power is yet, in this particular, unimpaired.

I have repeatedly known it to suppress black vomit, and in one instance of recovery after the presence of this symptom, (the only one I have ever witnessed) I attributed the cure to this medicine. It occurred in the case of a Mrs. Nickerson, in 1820.

Cayenne pepper comes admirably in aid of sinapisms, in equalizing the circulation and heat, and preparing the system for the administration of the serpentaria, or bark, or both. It is equally important, in removing the cold stage of adynamic fevers, and in sustaining the system, against the recurrence of the paroxysm. It gives elasticity and moisture to the hot, harsh, dry skin ; and has a powerful influence in checking profuse cold, and clammy perspirations. It comes admirably in aid of sinapisms, in relieving determinations to the brain, as indicated by headach and dilated pupils. It has a decided tendency to remove the dry rough condition of the tongue.

This article, certainly exercises a very extraordinary and peculiar power upon the capillary vessels. In its action, it is essentially revulsive. By invigorating the capillary action, it sharpens the sensibilities of the system.

Dr. Parker, long an eminent physician of this place, informs me, that his preceptor, the singular and eccentric Dr. Beacroft, for a time, used a combination of Cayenne pepper and bark in the treatment of our autumnal fevers. If he had associated the use of sinapisms with it, in the manner heretofore suggested, I feel satisfied he would never have abandoned the combination.

3d. *Serpentaria Virginiana*. This medicine had long been in extensive use in the treatment of autumnal fevers : though of late years, it has been very much neglected. Dr. Chalmers speaks in the highest terms of it. In common with other tonic remedies, it has been thrown aside by the mercurialists, as inadmissible in the treatment of our fevers.

Of all the articles used by me, in the treatment of our fevers, this requires most caution in its administration. Used without the aid of sinapisms, it frequently increases the disposition to delirium, and wherever that is present, it should be rejected. If given during the existence of delirium, it is very apt to produce coma, and subsequently death. Before I had learned fully, the circumstances under which the ad-

ministration of this medicine was injurious, I am now satisfied, that I occasionally produced bad effects by using it. I recollect, that during one season, (1821) in which I gave it, I found that wherever delirium followed its administration, the case terminated fatally; unless upon the very first indication of that, the serpentaria was withheld and sinapisms extensively applied; and to a favourable prognosis, I frequently attached the condition, that delirium should not occur. Since I have been in the habit of inflaming the skin more extensively by sinapisms, previous to the administration of other medicines, I feel no apprehensions of injurious effects following the use of serpentaria; and in most cases, it certainly is a valuable auxiliary. In a few cases, among the poor, where, from the want of attendance, &c. the usual remedies could not be administered, I have confined patients to the use of this article alone, and with success. In this, however, it was administered in the first paroxysm of the fever; most of the cases were double or simple tertians. The addition of the serpentaria to the Cayenne pepper tea, is valuable, where there is a harsh, dry, or hot skin. It is wholly inadmissible, in cases where there is present, cold clammy perspiration; and in all cases, indeed, where there is a disposition to frequent perspirations, from its tendency to produce them.

Independent of its other qualities, serpentaria is certainly a tonic of very considerable power; which is best availed of, by using it, when the infusion is cold. I ordinarily prepare it, by having a pint of boiling water infused in an ounce of the root; of which, I give about a wine-glassful every hour or two. When conjoined with the Cayenne pepper tea, as it most ordinarily is, it is usually in the proportion of three parts of infus. serpta. to one or two of the pepper tea.

4th. *Bark.* The qualities of this article are too well known to require much from me. In this country, it has for many years been rejected from the treatment of our autumnal fevers, save such as are strictly intermittent; and even in these, it is by no means a popular remedy;—most physicians attributing to it a character offensive to the stomach, and a great tendency to produce visceral obstructions. As regards the first objection, there is certainly much justice in the remark, when bark is used in the ordinary way, and without the previous use of sinapisms to inflame the skin. When, however, the surface has been extensively inflamed, the bark mixed in pepper tea or infus. serpenta., either separately or combined, may be given in very large doses, without at all embarrassing the stomach. I frequently give in severe cases, as much as three and four ounces in twenty-four hours; where the disease

is mild, less than half that quantity. I use it in every stage of the fever, whether of remission or exacerbation, with equal convenience. Once commenced, it is continued throughout the disease, in as large quantities as the stomach will receive ; and it is mainly to this mode, that I attribute the very general success, which has attended the use of it in my hands.

The second objection which has been urged against its use, namely, that it produces visceral obstructions, will be noticed hereafter.

To a wine-glassful of *serpentaria* infus. and pepper tea, I am in the habit of adding a table-spoonful of the bark in powder. This dose is repeated every hour or two according to circumstances. If by the too frequent administration of the medicine, the stomach is overcharged, the excess is cast off, and after a little delay, the medicine is resumed without inconvenience ; when, after having given bark freely, for a day or more, it has been suddenly withheld, the other medicines being continued, the remittent or paroxysmal character of the fever which had been destroyed, recurs, but again yields to this medicine.

I have used the sulphate of quinine, and with complete success. I have thought that the recoveries where that was used, were not as speedy as by the use of bark ; and that the reaction of the system was not so vigorous. Whether it be.

the result of habit, I will not pretend to decide ; but I do prefer the bark, and still habitually use it.

I have been gratified to learn, that some of our physicians, who, in 1821, '22 and '23, pronounced bark a poison, when used in our fevers, in 1824 declared that they could not dispense with sulph. quinine in their treatment. More recently, (1825,) some of our physicians complain that they are not so successful with the sulphate of quinine, as the last year. The explanation of this will be found in the fact, that the aid they received in their perplexities from this medicine, induced them to over estimate its virtues. I have recently in a few cases, administered the bitter extract, prepared from the residuum remaining after making sulphate of quinine, as introduced by Dr. Jackson, of Philadelphia, and with complete success. In all respects, so far as a limited observation will allow me to judge, it has appeared equal in efficacy to the sulphate of quinine.

5th. *The Arsenical Solution.* In mild cases of intermittent and remittent fevers, I have made much use of Fowler's arsenical solution, and certainly, with very decided success. This medicine, I am induced to think, acts chiefly here by its revulsive power. Where it is efficacious, in the treatment of these fevers, it is speedily so. It has long been enjoined, that it should

not be given more than for eight or ten successive days. In the ordinary doses of ten drops, thrice a day, it is known that it fails frequently. In 1821, I attempted to improve its efficacy, by giving in a shorter time, the same quantity usually given in the ordinary period of eight or ten days ; by which, two hundred and forty to three hundred drops would be administered in four or five, instead of eight or ten days. With this view, I directed ten drops every four hours. By this mode, I found that the solution usually produced after two or three doses, a gentle and regular moisture upon the skin ; and sometimes, a looseness of the bowels. Wherever the moisture was produced and maintained, the disease readily yielded ; and the medicine was soon after withheld. I soon adopted the plan of giving frequent doses, for some two or four hours before the expected recurrence of an intermittent paroxysm, and suspending its administration the intermediate days. Used in this manner, it was full as effective as when given daily ; and the system was measurably saved from the influence of a most active poison. Thus given, it usually produced a mild diaphoresis, of several hours continuance, and suppressed the return of the paroxysm. The prevention of two or three fits of fever in this manner, was usually sufficient to effect a perfect cure.

I once sent half an ounce of the arsenical solution to a sailor, labouring under a double tertian, who had previously taken no medicine. Ten drops were directed every four hours. Upon visiting him the next morning, although he was very sick the previous day, I found him eating heartily of some bread and cheese. Upon inquiry, I learned, that through mistake, the whole of the medicine had been given him at two doses ; which had produced an active purging, and afterwards a very profuse perspiration of near twelve hours duration. No further medicine was directed, and in three days after, I saw him engaged at work, on board ship, in good health and spirits. He had no recurrence of fever during his stay. I have derived decided benefit from the use of Fowler's solution as well in remittent as intermittent fevers.

In the treatment of our autumnal fevers, my attention is mainly directed to the fulfilment of two indications. The first is, to diffuse the circulation equally throughout the whole system. Upon the success of this, depends the relief from local plethora and congestion, causing pains in the back, bones, and head, delirium, tenderness of the stomach upon pressure, nausea, vomitings, and incessant but unavailing retchings, sense of fulness in the abdomen, sensations of internal heat, restlessness, sighing, costiveness, dry, parched tongue, &c. &c. The second in-

dication is, to give tone and energy to that diffused action of the vascular system. By its fulfilment, the local affections above recited, are prevented from recurring; tone is given to the capillary circulation, the energies of the system, impaired by the disease, are invigorated; the debility upon which it subsists, is arrested; and the fever disappears. The first indication is to be fulfilled, by inflaming the skin, extensively, with sinapisms. These are directed without regard to the temperature of the surface, or condition of the patient; provided, fever be present at the time. When there is much coldness of the surface, obvious debility or prostration present, the Cayenne pepper tea is always directed in aid of the sinapisms; and sometimes, (as when indicated by the habits, condition or constitution of the patient) where neither exists to any considerable extent. As already remarked, the time required to inflame the skin varies greatly in different persons, and in different conditions of the patient. Where much irritability of the stomach is present, it is proper to withhold all drink until the sinapisms have produced a decided impression upon the system. Otherwise, the continued retchings which are apt to be produced by the introduction of fluids into the stomach, counteract more or less the influence of the application upon the system. When it shall have been ascertained,

that the sinapisms have been removed too soon, it becomes proper that they be immediately re-applied; as, in serious cases of fever, no important advantage can be derived to the patient, until the circulation is essentially equalized by inflaming the skin; as the administration of the bark and serpentaria previously, frequently does injury, and they are apt moreover to be rejected. It occasionally occurs, that the portion of the skin inflamed by the sinapisms, is elevated above the adjacent surfaces. This is habitually a favourable indication; for it shows the capillary system to be in a condition to take on readily a vigorous action. This inequality of surface soon disappears, in consequence of the invigorated action in the inflamed portions extending itself beyond the seats of the inflammation.

The second indication is to be fulfilled by the administration of the bark, serpentaria, and Cayenne pepper, in as large and frequent doses as the stomach will bear, and the condition of the patient demand. When the first indication is effected, the quantity is limited only, in severe cases, by the capacity of the stomach. It has already been remarked, that occasionally, as much as four ounces of powdered bark have been administered in twenty-four hours; and that too, for successive days, to the great benefit of the patient. I know that the statement of this fact is calculated to excite doubt in the minds

of many experienced physicians. It is not, however, on that account, the less my duty to make it. I appeal to the future experience of those who will dare to examine and judge for themselves. That this article is offensive to the stomach of a fever patient, subjected to the ordinary treatment, I well know ; as indeed are almost all other articles in ordinary use. But diffuse the excitement throughout the system ; relieve the abdominal viscera, of the excess of blood, which oppresses them ; impart tone to the alimentary canal, by the free use of Cayenne pepper tea ; and it will retain any quantity of bark, which its capacity will readily allow it to receive. The great virtues of the bark are chiefly to be derived, when that article is administered in large quantities, in a small space of time ; and then, it is highly serviceable, in the early and almost certain removal of fever. Occasionally, some oppression is felt from the volume of medicine. This is relieved by the reapplication of the sinapism, which, when oppression of the stomach is present, should always be made. This sensation is most apt to be perceived upon the approach of a paroxysm, or exacerbation of fever, or in the early stage of either, at which time the reapplication of the sinapisms becomes proper to arrest the first, or to shorten and mitigate the second ; for, in no stage of fever, is the efficiency of this remedy

more obvious than when applied early in an exacerbation of this disease. Unless it is evident that such exacerbation will be brief, and inconsiderable, I invariably direct it. It is sometimes delayed, until pain recurs in the head or back, or until some other symptom indicates its use. Then, such symptoms are almost as certainly removed, as they would have been prevented by the earlier resort to sinapisms.

Earlier or later applied, in the exacerbations of fever, sinapisms not only relieve pain and local distress, but most commonly induce gentle moisture in a short time, and produce sleep or complete composure. As soon as it becomes evident that the disease is arrested, in its tendency to an unfavourable issue ; or, in other words, so soon as it becomes obvious, that the remedies exercise a controlling influence over the unfavourable symptoms, it is proper to add to the vigour of the system by nourishment, in the form of chicken water, beef tea, and porter, or claret wine. Their administration neither interferes with the medicines, nor requires a reduction in their quantities ; for, as the system reacts under the treatment, its capacities increase. Porter is preferable to claret ; but it occasionally occurs that flatulence is produced by the former, to such an extent, as to require its discontinuance. This symptom sometimes arises in the course of the disease, obviously without connexion with the administration of any article ; then, I have con-

sidered it as decidedly favourable. From one to two pints of either claret or porter may be advantageously given in twenty-four hours. A small portion of water is sometimes added to either, but not unless by the desire of the patient. The great object is to give such food as is most nutritious, and least irritating, in small quantities, frequently repeated. With this view, the juicy meats have been chosen; which patients are allowed to chew, from time to time. By this course, there is little danger of overloading the stomach; which, from the reigning debility, is readily done, either by the volume of food, or its irritating character. Most of the slops in ordinary use, and especially those of a farinaceous kind, may be advantageously dispensed with.

It results from the above sketched mode of treatment, that relief is first wholly or in part, obtained from the local affections, as pains, nausea, oppression, retchings, &c.; after which, the excitement is equalized throughout the system, and then elevated above its healthy standard; in consequence of which, the pulse becomes regular, full, and soft; the respiration steady and natural; the excretions somewhat increased, and approaching a healthy condition; frequent moisture appears upon the surface, the tongue assumes or approaches a healthy condition, the patient sleeps frequently and composedly, the appetite returns, there exists a gentle thirst; the bowels are moved from time

to time, if they had been costive ; one or more motions follow the reapplication of the sinapisms, and the mind of the patient is tranquil or buoyant with the anticipation of a speedy recovery. After one or more days, according to the severity of the fever, or the period at which the treatment was commenced, the elevated excitement begins gradually to decline, and regardless of the regular administration of the medicines, and the occasional recurrence to the sinapisms, it gently and almost imperceptibly, subsides to its healthy pitch ; and the patient is left in a state of convalescence, which in the absence of positive exposure, is short and complete. Occasional doses of the medicines are given, for several days after the termination of the fever.

The creation by this mode of treatment, of a general and elevated excitement of the system, and its gradual declension to a natural stage, is to my mind, not only an unanswerable argument in favour of the existence of debility in our fevers ; but, one of the most interesting facts connected with that treatment. The gradual declension of the elevated excitement, is certainly attributable to the due distribution of the blood, and consequently the perfect restoration of the functions of the various organs of the body, or (and what amounts to the same) the equal and perfect action of every part of the vascular system. That the fever is overcome by this excitement, is to me obvious, for once created, it is extended be-

yond the duration of the fever. In this we have a happy illustration of John Hunter's remark, that "*no two (general) actions can exist at the same time, in the same system.*" That of the fever, subsisting upon an unequal distribution of vascular action, being the weaker, yields to that created by my plan of treatment, whose tendency is to create and to maintain an equal circulation; which, being the condition of health, is necessarily the most powerful, and subdues the action of disease; or, in other words, the action of debility. Here, we have then, a new and more powerful action; whose tendency is to health, overcoming and subduing the disordered action of fever, whose course is to increased debility, and death. This is the action, which has been in this country, so universally, and as erroneously, claimed for mercury.

Frequently, two or more paroxysms of fever have occurred; or several days have elapsed, since the supervention of the disease, before the attendance of the physician is required; during which time, frequently, in addition to the mere effects of the disease, detriment has been derived from the injurious use of active evacuants, or some other improper medicine. Under every circumstance, the first application should be sinapisms, as before remarked. If there exist much disposition to vomit, or severe retchings, the Cayenne pepper tea should also be directed; and as little diluted as may be, according to the emergency.

Ordinarily, however, and where there is no great urgency, the patient is directed to abstain from all things else, until the sinapisms have performed their office, when, according to the indications, the other medicines are to be administered.

I have already alluded to the usual production of evacuations, by the surface, kidneys, or bowels, by the first application of sinapisms. This is more common, and remarkable, where the patient has been allowed to remain several days without treatment. Upon the succeeding application of the sinapisms, these evacuations are not ordinarily so copious. It is questionable, if, when at all serviceable, they ever fail to induce some evacuation. Their influence upon the bowels, is very remarkable. I am frequently urged by patients, who imagine they feel some uneasiness from the supposed want of a stool, to give a purge. My answer is, that upon the super-vention of the next paroxysm or exacerbation, the sinapisms will be used, when the bowels will be sufficiently moved; and it is indeed rarely, that I am disappointed in my anticipations.

The moderate evacuations caused by sinapisms, when the system is oppressed, are certainly salutary; and aid, by reducing somewhat, the volume of blood; and, by leaving the blood vessels less embarrassed, in restoring an equalized circulation. Where the sinapisms are applied to a skin in cold clammy perspirations, tone is imparted to it; the perspirations are

checked, and the bowels usually moved. Pretty free purgings sometimes follow the application of the sinapisms; in all such, it will be found, that the evacuations are highly unwholesome and offensive; and not thin and watery, as when caused by active purges.

Where the skin is rough, dry, and hot, to the feel, when, although there may be occasional vomitings, there is not usually severe gastric distress, (for with the latter there is usually more or less moisture of the surface) the pepper and serpentaria are early administered, with sinapisms; because, they have a powerful tendency to aid in the improvement of such condition of the surface. If, however, there should be severe pain in the head, delirium, or tendency thereto, the serpentaria should be withheld, and the pepper given alone. After the head has been relieved by the inflammation of the skin, the serpentaria may be safely and advantageously given. The infusion of this article, given cold, is by no means so apt either to affect the head, or promote perspirations, as when hot. It is equally improper to administer the serpentaria, when there is an undue tendency to moisture of the skin, or cold clammy, or profuse perspirations. When any or all of these exist, the Cayenne pepper is highly serviceable in aiding to arrest them. To this, the bark may be advantageously added, as soon as the skin has been fully inflamed, and the system

begins to react; until which, its use is injudicious. I have frequently given bark previous to such reaction, but never with advantage. Given freely, during the apyrexia, where sinapisms have not been previously used, it frequently offends the stomach, and disgusts the patient; where, however, it is retained, it almost certainly embarrasses the stomach, upon the super-vention of the succeeding paroxysm. Where the skin has been extensively inflamed, bark, serpentaria, and Cayenne pepper may be safely and advantageously given, in every after-stage of the disease.

The objection which has been made, that bark produces visceral obstructions in fevers, is without foundation, in cases where the skin is properly inflamed previous to its administration. Then visceral obstructions are not only prevented, but old ones, both of the liver and spleen, are actually removed. To this fact, I have the additional evidence of Dr. Screven. But, so long as the irregular distribution of blood produced by autumnal fevers, is allowed to remain by omitting the use of sinapisms, so long will visceral engorgements during fever degenerate into visceral obstructions after it; whether bark be used or not; but more extensively in the first case, and, so long will the cures be incomplete, and the patients consequently subjected to relapses. It is certainly to be lamented, that objections, which have grown

out of the injudicious use of this invaluable medicine, should have had so great an influence in banishing it from use, in a disease where, properly administered, it is certainly unrivalled in efficacy.

In the presence of prostration, with its usual attendant symptoms, reliance is to be mainly placed upon the sinapisms and Cayenne pepper. Here, additional sinapisms should be applied to the thorax, hypochondria, arms, and thighs; and the utmost energy and perseverance are necessary in the physician. The sinapisms should be removed from time to time; and their efficacy will be certainly increased by the addition of spirits of turpentine. Frictions with red pepper, or mustard, are serviceable. A wine-glassful of the Cayenne pepper tea, may be given every fifteen or thirty minutes. The recovery of the patient will much depend upon the previous treatment, to which he had been subjected; and also upon his previous habits of life. If he had been subjected to the evacuating and mercurial system of treatment, or if he had been extensively blistered, but faint hopes should be entertained of a recovery. Ordinarily, there is but little difficulty in producing a reaction after prostration in a patient, not subjected to previous treatment. The energies of his system seem to be rather overcome than exhausted. His prostration has been purely the result of the fever, unaided by the administration of debili-

tating medicines. With him prostration has been a stage in the course of the fever ; and not the achievement of an injudicious treatment precipitating an evil, by sapping the energies of the system.

Free purgings in our fevers certainly increase the tendency of the blood to the abdominal viscera, and lessen the ability of the system, to equalize the circulation. In the fall of 1821, a schooner arrived in this port, after a short passage from Havanna, with four of the crew ill of yellow fever. One was in *articulo mortis* ; another of them had been sick four, and the other three days. The three latter were carried to the hospital ; and recovered under the use of sinapisms, pepper, and bark. They had taken no medicines previous to coming under my charge. They recovered more readily than other patients of the same calling, almost daily admitted into the hospital, who did not exhibit the same violence of disease, but who had been sometimes bled, and frequently, purged freely, before admittance by physicians, who were not disposed to send them to the hospital, whilst there was a prospect of their recovery. I feel no doubt, but that if the three patients from Havanna had been freely purged, previous to their prostration, it would have been next to impossible to have raised them from the condition in which they were when received into the hospital.

Where prostration takes place in persons, habitually intemperate, little hope need be entertained of recovery ; for the system of such, accustomed to the influence of ardent spirits in health, are for the most part, insensible to the most powerful agents, when overturned by fever. Moreover, in such, the tendency to collapse, is wonderfully strengthened ; and prostration, if it is not present from the first, supervenes at a very early stage of the disease. Habitual drunkards very rarely become the subjects of autumnal fevers ; unless, when they curtail, from any motive, their usual allowance of drink. I have rarely known an instance, where one has attempted a reformation in summer or autumn, by suddenly refraining from strong drink, without taking fever. When, under such circumstances, fever has accrued, within my observation, it has constantly proved fatal ; and such cases always assume a malignant character, from their very commencement. The security, which the habitual drunkard enjoys, is very remarkable, and was fully manifested in 1820. During the greater part of that season, several persons habitually exposed themselves, night and day, to the weather, in a state of constant intoxication. One of them died suddenly, from a stroke of the sun. He had not been long in this climate. None of them suffered from fever.

In prostration, most physicians, regardless of their notions of the inflammatory nature of au-

tummal fevers, resort to the free use of stimulants, and their selection of them is frequently highly injudicious. It is then, that abandoning suddenly their mercury, their purges, and their blisters, they overpower their patients with ardent spirits, wine, volatile alkali, &c. &c.

My own observation assures me, that especially in prostration, ardent spirit is highly injurious. It seems to impair the nervous power. Independently of the agitation which it produces in the vascular system, and its tendency to increase cold clammy perspirations, the torpor which very soon follows upon the excitement, when any is produced, certainly adds to the reigning debility, impairs the little remaining excitement of the system, and consequently interferes essentially with the success of other and more permanent impressions. These, however, are not always the greatest evils, that result from the administration of ardent spirit. In cases of prostration, it frequently fails to excite the system at all. Here, its sedative influence is directly exercised; and it adds immediately to the debility of the system, without having produced any intermediate excitement. This is not unusually its effect, and it has certainly not attracted that attention to which it is entitled. The same objections, in some degree, extend to wine. It is certainly not to be relied on in prostration. The presence of dysenteric symptoms in autumnal fevers, should not affect the treatment of

the latter. Bark, serpentaria, and Cayenne pepper, may be as safely and beneficially administered then, as at any other period of the fever. Indeed, under their use, the dysenteric affections are removed. In protracted cases of autumnal fever, and also subsequent to prostration, patients sometimes suffer much from loss of sleep. Here, small doses of opium (say from one-fourth to one-third of a grain, given at intervals of four to six hours, as occasion requires,) have frequently a very happy effect in producing repose; and, where larger doses wholly fail. This practice I derived from Sydenham.

Where there is sufficient warmth of skin to admit of it, instead of giving opium, it is directed to sponge the body, or extremities, or both, with a napkin wetted in warm water; and gently to wipe off the moisture, as applied with a dry napkin. This practice, I have found highly conducive to repose in our fevers, and in many other diseases, where there was an unpleasant heat in the surface.

In 1820, I frequently derived decided advantage from the affusion of cold water, in treating fever. Where it is of service, it acts revulsively. The same season, I used advantageously enemata of iced water. I never knew injury result from them. I have, occasionally, in protracted cases of fever, in feeble phlegmatic habits, and in delicate women, used a strong in-

fusion of ginger, with decided advantage, where other medicines did not appear to produce sufficient warmth. Occasionally, after the fever has been subdued, and there is no further occasion for the remedies, the tongue still remains furred; or if previously clean, becomes so, and the sensations of the patient, and his alvine evacuations indicate a disordered condition of the stomach. Here, a few doses of blue pill and castor oil usually relieve the alimentary canal from its embarrassment; after which, some cordial tonic becomes proper. I have found none to equal the following—

R. Carbonat. Amoniæ. grs. xxiv.

Red Valenan. off. gr. xxxvj.

Rad Zinziber, ʒj.

M. divid. in pulv. No. 12:—

of which, one may be given every six hours. If the bowels should be disposed to costiveness, three to five grains of rhubarb may be added to each powder. The above combination, I have found of infinite service, in cases of dyspepsia; and I recommend it with a confidence derived from several years' experience, as imparting a tone to the digestive system, in affections of that character; ordinarily most difficult to be produced, and yet of the highest importance to the patient.

In the investigation of the symptoms of our fevers, great stress has been placed upon the appearance of the tongue, or rather the neces-

sity of that being clean previous to the administration of tonics, and it is required, that that be effected by continued evacuations. This is, certainly, a very dangerous error. One or two active purges given to a person in health, during our summer or autumn, will unquestionably produce a foulness of this organ : so, in our fevers, the furred tongue will be perpetuated by purging medicines ; when, by a few doses of bark, serpentaria, and pepper, given subsequently to the application of sinapisms, the appearance of the tongue approaches much more nearly to a healthy state ; and upon the termination of the disease, is for the most part free from fur. Active purgings in our fevers, by increasing the tendency of the blood to the abdominal viscera, vitiate their secretions, as manifested by the tongue. At every period of a healthy existence, the blood vessels are at some one point, discharging excretory matter. The great outlets are the skin, alimentary canal, and kidneys. Suppress the exercise of one of these functions, and that of another is increased. This is the whole mystery of the occasional, almost immediate, deposite in the bladder of fluids, received into the stomach, and which has induced many physiologists to infer the existence of a direct communication between the two. Whilst the motion of the blood is estimated upon hydraulic principles, such sudden translations will remain unexplained ; but allow to the system, the existence of a

power (daily exercised) of varying the determination of blood, rapidly and readily, from one part to another, and the difficulty is solved.

The suppression of function, at the same time, in the skin, alimentary canal, and kidneys, as occasionally occurs in the onset of autumnal fever, subjects the patient to a most appalling restlessness. Coma supervenes, and death speedily closes the scene. Such cases terminate usually in less than forty-eight hours; sometimes in little more than half that time.

In the whole course of my observation, I recollect to have met with but three cases of fever, in which, after the inflammation of the skin by sinapisms, the pepper, serpentaria, and bark have been rejected at every period of the disease. Each of these was successfully treated with charcoal,* given in large and frequent doses. One

* Since my last communication in Chapman's Journal, upon the efficacy of charcoal in obstinate constipations, further observation has fully confirmed what was then said in its favour. In several other diseases, I have also found this medicine of great utility, and especially in the febrile diseases of children; in which, there are usually extensive secretions of slime in the bowels.

Upon the suggestion of Dr. Sereven, I have used it beneficially, for worms. In *Cholera Infantum*, it fulfils indications, which no other medicine that I have used, would. I have found charcoal highly beneficial in the diarrhœa of persons in the decline of life; where the evacuations give out a smell similar to that of putrid flesh, though more disagreeable. This medicine is certainly destined to become one of the most valuable articles of the materia medica, in the treatment of many diseases of the alimentary canal; to which, it certainly possesses the power of imparting much tone, as well as essentially improving its secretions. It is a valuable medicine for preparing the digestive organs of dyspeptic patients, for the advantageous exhibition of tonics.

was that of a lady in the seventh month of pregnancy. The second was that of a girl about fourteen years of age, from whom many large worms were discharged, in the course of the fever. The third was that of a man, treated the preceding season with sinapisms, pepper, serpentaria and bark, when labouring under an attack of fever, attended by convulsions.

In all cases of fever, where the bowels are not daily moved, occasional small doses of castor oil or an enema, should be administered. It should be borne in mind, that in our fevers, much smaller doses of medicine purge, than in the inflammatory diseases of winter, and in the same diseases of more northern latitudes.

When called late in the disease, where the evacuating treatment has been pursued, as frequently occurs in the country, the surface of the patient is not unusually, (if prostration has not already supervened,) found hard, dry, and inelastic; and the physician is informed, that throughout there has been a complete absence of perspiration, or even moisture. Under such circumstances, great caution is necessary in substituting a tonic course of treatment, and in no instance can it be safely done, until the skin, in some measure, can be brought to resume its functions; and then, there will be a tendency to visceral obstructions from it. The liver will be found more or less enlarged, and that motion in the integuments over the carotids, so constant in

chronic disorders of abdominal viscera, will be observed. In such cases, the repeated use of active purgatives has increased the tendency of the blood internally, and by evacuating through the bowels a portion of the aqueous part of it, has lessened the necessity (so to speak) of the internal capillaries, to make a vigorous effort to relieve themselves; and has subjected them to a more constant, though measured and regularly increasing, engorgement. Within the last forty years, the extensive introduction of active purgatives into the treatment of acute diseases has almost revolutionized the science of medicine; and no one can doubt, that, in most instances, it has been done with decided advantage. That the practice has been carried occasionally to far, is, too my mind, equally conclusive; and no where, perhaps, have they been used more disadvantageously, than in the treatment of autumnal fever. In this opinion, I am supported by names of high authority.*

* Alexander of Trallis was aware of the great debility which followed the use of purgatives, and restricted their use in acute fevers. He succeeded better with gentle laxatives, even when there were considerable congestions. *Sprengel*, tom. ii. p. 212. Mesué entertained an aversion to purgatives in fevers, in common with other Arabian physicians. *Ibid.* 272. Arnaud de Villeneuve adopted it as a rule that purgatives increased the intensity of Quartans. *Ibid.* 443. Leonhar Fuchses considered purgatives as producing the most injurious effect in intermittents. *Ibid.* tom. iii. p. 12. Vantlelmont was the greatest *hemataphobe* that ever lived, and was opposed to evacuants generally. When any were required, he used the mildest. *Ibid.* tom. v. p. 401. Cullen and others opposed the use of purgatives in autumnal fevers.

The opinion has been already expressed, that the use of drastic purgatives may change the type of fever, from an intermittent to a remittent. Where they do, it is by diverting a portion of the blood, thrown in upon the internal capillaries by the regular operation of the fever, from them to those of the alimentary canal; whereby the volume of blood in the former is lessened by the discharge of some of the aqueous portion into the intestines; and the internal capillaries, are, in some measure, relieved from the necessity (so to speak) of an immediate reaction, which would have terminated in a perspiration, resolving the paroxysm. It is not (nor can it be) denied, that the administration of a purge is occasionally serviceable in the treatment of autumnal fever; but then, that service is an incidental, and not an intrinsic consequence; and dependent upon the precise condition of the vascular system at the moment, and not upon the habitual action of the medicine. Rush has, with great justice, somewhere remarked, that, what will at one time produce perspiration, will at another time, prevent it; according, as he says, "to the state of the system;" and instances, if I am not mistaken, the effect of cold water taken into the stomach, producing at one time perspirations, and at another, suppressing them. The same obtains in the use of purgatives. Whenever they are serviceable in autumnal fever, their operation is attended by perspiration,

and they act revulsively. Here, they relieve the internal capillaries from an oppressive volume of blood; whereby they are enabled to react, and produce a perspiration resolving the paroxysm. This is equally correct in the use of blood-letting in the same disease. Under some circumstances, I have used the lancet with decided advantage; and then always, the depletion was critical; perspirations following through a revulsive agency. But certainly, in neither, would such success establish a general rule for the use of either.

Cathartics given in the forming stage of fever, usually fully develope it. They certainly, as well as bleedings, very obviously increase the tenderness upon pressure, over the stomach, as well as increase its irritability. They frequently repel eruptions from the surface, upon the restoration of which, improvement follows. *I, of course, speak of purgatives, in contra distinction to mere evacuants;* for all acknowledge that costiveness should be obviated in treating fevers. Although some diversity of opinion exists elsewhere, as to the propriety of emetics, in the treatment of autumnal fevers, the physicians of this place are, I believe, unanimous in rejecting them. Yet, they have occasionally even here, been advantageously given. I have supposed, that when they are beneficial, (for I have not known such instance, where there was much severity of disease) it is through a revulsive ac-

tion. I was in 1817, strongly impressed with the danger which frequently follows the use of tartar emetic in autumnal fevers. The high price of, and great demand for, Indian corn that summer, in this place, tempted an unusual number of northern schooners, freighted with that article, into this port, late in summer. Fever soon seized their crews. (All know the great economy habitually observed in these vessels.) They were usually provided with sulphate of soda and tartar emetic, which were, in combination, habitually given to the sick. The situation of health officer, which I then held, occasioned my employment for many of these sick seamen. I was frequently called to see such as had upon the supervention of fever, taken this combination, twelve and twenty hours after its administration. I usually found them in a state of great exhaustion, with constant retchings, great tenderness of the stomach upon pressure, great pain and heat in the head, and covered with cold clammy, or profuse cold perspirations, and with very little or no pulsation at the wrists. Few survived this condition, many hours. The use of emetics (and especially of tartar) rapidly increases the debility of fever; and not only impairs the reaction of the internal capillaries, but increases the tendency of the blood internally. Tartar emetic, or sulphate of zinc and sulphate of soda, in combination, are habitually prescribed upon plantations on the sea-coast of South Carolina

and Georgia, in ordinary cases of autumnal fevers and pleurisies, to the negroes ; and generally with decided advantage. Usually, the combination pukes and purges ; upon which, perspirations (especially in the fevers) follow. Here the action is evidently revulsive. It should be borne in mind, that cases of autumnal fevers, in this class of our population, are obviously very mild ; and that the simplicity of their diet, as well as other circumstances, heretofore alluded to, not only render them less obnoxious to the causes of fever, but also much more readily curable than the whites.

Such is the method of treating our autumnal fevers, which I have pursued for several years, and certainly with a decided success. Under every modification of symptom, the spirit of that treatment should be rigidly adhered to ; and it is only to such as are disposed to try it in sincerity and truth, that I recommend it. It is necessary to the successful administration of the bark, pepper, and serpentaria, in the proper quantities, that the skin should be first fully inflamed in some parts ; otherwise these medicines will be rejected, or produce such embarrassment as to forbid their continued use. I am anxious to impress this fully upon my readers, FOR UPON IT DEPENDS THE SUCCESS OF THE WHOLE SYSTEM OF TREATMENT. A mere rubefacient effect from the sinapisms, though temporarily serviceable, will not answer in severe cases. THE SKIN

MUST BE INFLAMED; AND THAT INFLAMMATION KEPT UP THROUGHOUT THE WHOLE COURSE OF THE DISEASE. From fevers, thus treated, patients recover almost as speedily as their attacks were sudden; and retain very few, if any vestiges of the disease. Where there has previously existed considerable visceral obstruction in the abdomen, more caution is necessary in the administration of the tonics; and sometimes, in such, there is some tendency to inflammatory action, arising from the condition of some of the disordered viscera. Hence, the justness of the remark of Dr. Screven, to me, that under this system of treatment, the Irish almost constantly recover; when with the former mode of treatment, their fevers were generally fatal, as ample experience here has shown. The same remark applies with equal truth to New-Englandmen.

The treatment here recommended would certainly increase inflammatory fevers. This is exemplified by the use of the heating regimen in small-pox. It would be positively injurious in inflammations, as pleurisy, &c. It has been contended that bark merely suspends fevers. If it did no more, it would certainly still be valuable.

If the tenderness of the stomach was owing to inflammation, sinapisms would not suddenly arrest it: it would eventually prove frequently fatal, or terminate as do other inflammations. Moreover, the sensations of the patient connected with the stomach, are different in autumnal fevers,

from those experienced in gastrites. In the former, they are vague and undefinable. The reverse obtains in the latter. In autumnal fevers, there is a shortening, and consequently, thickening, of the tongue ; when protruded through the lips, it has frequently a tumulous motion, which the patients cannot suppress. It is frequently hard and dry, with a brown coat during the exacerbation of fever ; sometimes traversed by numerous *sulci*, or deep cracks, which remain long after the termination of the disease. How different from these, are the appearances presented in inflammatory diseases ?

In inflammatory diseases, the bowels are bound ; and the evacuations produced by purgatives, are slimy and thick ; in autumnal fevers, after the ingesta are discharged, the evacuations are thin and watery, and there is a tendency to looseness.

In inflammatory diseases, the appearance of perspiration is habitually salutary : and an essential object in the treatment, is their production. In autumnal fevers, and especially in severe cases, they frequently are present throughout the disease, and to the obvious detriment of the patient ; and their suppression is highly important to recovery.

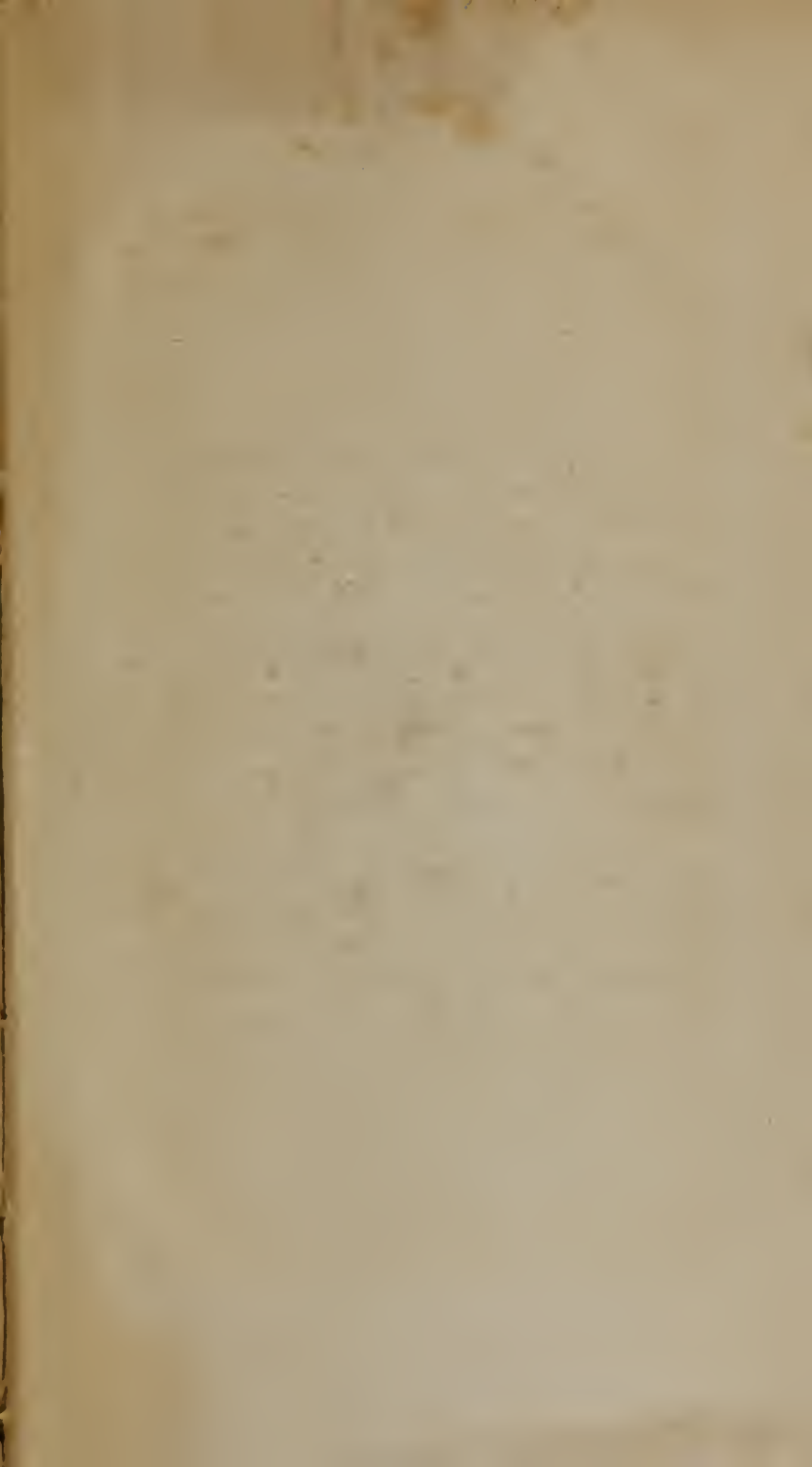
It will at once be perceived, that the foregoing system of treatment depends for its success, mainly, upon its revulsive powers over the system. It is this, I am chiefly desirous of impressing

upon my readers; for I have no doubt but that any other plan of treatment, equally revulsive in its character, and equally suited to maintain an equalized action of the system, when once produced, would be full as efficient.

I have arrived at my conclusions, slowly and cautiously.—They are offered to the medical public, under a conviction (perhaps erroneous) of their importance, forced upon me by the observation of several years.

In concluding these brief remarks, I may be permitted to observe, that they have been penned at moments snatched from other, and more pressing and active pursuits. They are submitted in their present imperfect and defective shape, only because I have not further leisure to devote to them. I hope I have made myself intelligible. I have aspired to nothing more. What I have here reported, must finally rest upon the accuracy of my observations, and the correctness of my inferences from them. Of the former, I speak with a confidence not to be shaken; of the latter, others may judge.

THE END.







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